

# Hospital Utilization Review and Medicare: A Survey

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HOSPITAL UTILIZATION REVIEW AND MEDICARE: A SURVEY

by

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
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## NOTE

With the enactment of Medicare, utilization review became a national requirement for third-party reimbursement of certain health care costs. As a result, for many hospitals participating in the Medicare program, utilization review has become a significant new element in the operation of the institution. This paper attempts to provide a general orientation to the subject. As such, it has three objectives:

- 1) to provide an historical perspective for the utilization review concept and its development under Medicare;
- 2) to survey the current major activities in this area; and
- 3) to appraise the future trends and general progress of hospital utilization review in the Nation.

This report is limited to presenting survey material relating to UR projects, contracts, and other activities. The intent is to describe, as objectively as possible, the nature of these activities, their scope, methodology, and limitations. In general, these descriptions result in large measure from publications available in 1970, and may not reflect later developments in a rapidly changing field. Despite the limitations on available information, which are noted in the report, the survey has been found useful for background purposes by ORS staff and is made available in this form for others who may also find it of use.

The gathering of material for this survey required an investigation of numerous source documents, including informal memoranda, administrative notes, background records, and other materials. The source materials also included interview notes and consultations. Where referencing was impossible or precluded in the text, it is to be understood that permission was obtained privately for the release of all such information.

Rona Beth Schumer is an analyst in the Office of Research and Statistics and compiled this report while assigned to the Division of Health Insurance Studies, under the general direction of Mr. Aaron Krute, Deputy Director of the Division.

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Assistant Commissioner for  
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## INTRODUCTION

Utilization review (UR) is a self-analysis mechanism for health care institutions, one designed to promote a more effective and efficient use of their services and facilities. Hospital UR, as formulated under the Federal Health Insurance for the Aged Act (Medicare) 1/, directs providers of care who participate in the program to conduct their own two-part self-analysis: (1) a case review to reveal existing utilization patterns and trends as the basis for corrective action; and (2) a review of every case of extended inpatient stay.

The UR concept means, literally, the review of utilization. This can include examination of the necessity for admissions to the hospital (by type); justification for lengths of stay (by diagnosis and other pertinent factors); and assessment of the propriety and quality of medical services provided. Either individual case reviews or statistical summary techniques may be employed to evaluate the efficiency and effectiveness of hospital utilization. Variations among hospitals may, of course, occur in the purpose of these reviews, the types of cases selected for scrutiny, and the method used for evaluation.

The passage of Medicare in 1965 directed concerted national attention to utilization review. Though not a concept original with the program (several successful UR programs were already in effect), nevertheless this marked the first time that it became a national requirement for third-party reimbursement of certain health care costs. The size and scope of Medicare, encompassing nearly all hospital and other health care services furnished to elderly persons protected under the program, in effect made utilization review a significant new element in the operation of the nation's hospitals. Those providers of care in which UR was new or not yet fully operational had to institute sample reviews (usually post-discharge) of admissions, lengths of stay, and medical services rendered, as well as concurrent reviews of all long-stay cases. Through an extensive procedure of consultations and administrative clearances, Federal agencies established flexible regulations and guidelines for provider UR committees. Official policy emphasized the educational rather than the regulatory aspects of utilization review and encouraged individualized approaches to it.

UR under Medicare involves several levels of administrative organization. These include the hospitals, the State agencies and fiscal intermediaries, the Public Health Service, and the Social Security Administration.

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1/ Title XVIII, Section 1861 (k) of Public Law 89-97, the Social Security Amendments of 1965. A similar UR requirement also exists for extended care facilities participating in the program, but a discussion of utilization review in extended care facilities lies beyond the scope of the present paper.

The patterns of individual hospital UR committees vary greatly. Where utilization, tissue, medical audit, medical records, or admissions committees overlap, duplications of effort may sometimes occur if coordination is lacking in the hospital. State agencies, working under contract to the Social Security Administration and receiving professional guidance from the Public Health Service, certify hospitals as to their eligibility to participate in the Medicare program. Fiscal intermediaries, also under contract to the Social Security Administration, evaluate the operational effectiveness of the UR plans of participating health care institutions. In addition, the informal organizational setting of utilization review activities under Medicare includes State and local medical societies, regional and national data systems, and research groups specializing in methodological studies or consultative functions.

The Public Health Service, the Social Security Administration, medical societies, fiscal intermediaries, and commercial or nonprofit corporations or other organizations are currently sponsoring or engaging in a wide variety of UR study projects and statistical support mechanisms. These have been designed either (1) to assess procedures for improved UR committee functioning; (2) to provide case screening and data compilation services for utilization review; or (3) to insure UR data compatibility with other health information and health facilities data, and thereby to help fulfill broad research, monitoring, and planning functions. Results of all these efforts indicate that the efficiency of the UR process in hospitals can be greatly improved.

The appraisal of UR remains of prime concern because of its implications for self-scrutiny of hospital practices and costs and for national health care financing, standards setting, and comprehensive planning. This ORS staff paper assesses the current evolutionary status of hospital utilization review and its perceived benefits. It also underscores the need for continuing future development, accompanied by additional methodological research and further documentation and evaluation of field activities.

## Chapter 1. UTILIZATION REVIEW REQUIREMENTS AND POLICIES UNDER MEDICARE

### The Law

The passage of Medicare in September 1965 established utilization review as a statutory requirement that hospitals and extended care facilities must meet to be certified as participating providers of service--that is, as eligible to receive program reimbursement.

A Medicare-approved UR plan must provide for a sample or other review of "admissions, durations of stay, and professional services (including drugs and biologicals) furnished," to establish the medical necessity of such services and to promote the most efficient use of available health facilities and care rendered. 1/ In other words, the legislative intent was that a UR plan would involve the review of necessity for hospital admissions; the logical substantiation of diagnoses; durations of stay for various categories of illness; the different elements in a hospital's operations which contribute to variations in lengths of stay (such as the staffing pattern, the time lapse between the ordering of diagnostic and therapeutic procedures and their performance, and the need for and delays in obtaining consultations); the availability of alternatives to hospital care to speed discharges; and the timely use of these alternatives. The function of this review is to obtain information useful both for planning and control purposes and also for continuing the education of physicians and hospital personnel regarding their utilization of scarce resources to best advantage.

The second part of Section 1861 (k) of the law requires a UR plan to provide for the review of each case of continuous extended duration of stay. 2/ The purpose is to ensure a timely examination of every long-stay patient's course of treatment and continuing need for inpatient services. This review is designed primarily to protect program funds against medically unnecessary reimbursements. 3/

### The Regulations

The 1965 Medicare legislation was a watershed in UR development. 4/ Of even greater importance than its specific wording, however, was its subsequent administrative interpretation. Federal regulations set forth in more

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1/ Compilation of the Social Security Laws, 89th Congress, 1st Session, 1965, House Document No. 312, pp. 276-277.

2/ Ibid.

3/ Executive Hearings before the Committee on Ways and Means on H.R. 1 and Other Proposals for Medical Care for the Aged, 89th Congress, 1st Session, 1965, House Document No. 288, pp. 106-107.

4/ The Social Security Amendments of 1967 brought no significant changes to the area of utilization review.



detail than the law the conditions of program participation for all hospitals, extended care facilities, home health agencies, and independent laboratories. The regulations included utilization review as one of the conditions of participation for hospitals and extended care facilities. 5/

The UR condition of hospital participation established the following standards that an acceptable UR plan must meet in fulfilling the two aforementioned requirements of the law: 6/

- (1) The plan must have the approval of both the medical staff and the governing body of the hospital, and the medical staff must accept the responsibility for its operation.
- (2) There must be a currently applicable, written description of the hospital's utilization review plan which includes:
  - (a) The organization and composition of the committee(s) responsible for the UR function;
  - (b) The frequency of meetings;
  - (c) The method of selecting cases for review on a sample or other basis;
  - (d) The definition of what constitutes the period or periods of extended duration;
  - (e) The relationship of the UR plan to third-party claims administration;
  - (f) The type of records kept;
  - (g) The arrangements for committee reports and their dissemination; and
  - (h) The responsibilities of the hospital's administrative staff.

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5/ Other general conditions of participation were: licensure and accreditation status; personnel qualifications for the provision and supervision of medical care services; requirements for supporting departments; health and safety standards for the facility; the organization of the medical staff and hospital administration; and the maintenance of clinical records on all patients. U.S., Department of Health, Education, and Welfare, Social Security Administration, Code of Federal Regulations, Form HIR-10, Title 20, Ch. III, Part 405, Sections 1020-1040, June 1967.

6/ Ibid., Section 1035.

In addition to the UR standards established for all hospitals, psychiatric and tuberculosis hospitals are each subject to two further conditions of participation. These involve special staffing and recordkeeping requirements.

Although it is not necessary for Christian Science sanatoriums to satisfy the same conditions of participation applicable to hospitals and extended care facilities, they must be operated or listed and certified by the First Church of Christ, Scientist, Boston, Massachusetts; be in compliance with the Civil Rights Act; and have in effect a utilization review plan meeting the following requirements: 7/

- (1) The nursing department of the sanatorium accepts the responsibility for its operation, with the approval of the governing body (the board of trustees or the directors) of the institution;
- (2) The composition of the UR committee includes as a minimum the manager, the superintendent and the assistant superintendent of nurses, and the admissions secretary of the sanatorium;
- (3) The committee reviews the necessity of inpatient admission for every guest eligible for these Medicare benefits;
- (4) The committee reviews each beneficiary case of continuous extended duration with respect to the necessity for further covered sanatorium services;

This must be done no less frequently than the fourteenth day of inpatient stay and every thirtieth day thereafter. "If the UR committee determines that further covered sanatorium services are not necessary, it should send prompt notification in writing to the institution, the practitioner on the case, and the guest or his representative." 8/

- (5) The maintenance of records of the committee's activities, including minutes of all meetings and reports (to be placed in the guests' records) of actions taken in their own long-stay cases and the reasons for them; and
- (6) The assembly of information for "studies and statistical reports that may prove valuable in promoting the most efficient use of sanatorium services and facilities." 9/

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7/ U.S., Department of Health, Education, and Welfare, Social Security Administration, Health Insurance for the Aged: Christian Science Sanatoriums, Manual Supplement Revision No. 2 (Baltimore: Social Security Administration, April 1970), pp. 1-2.

8/ Ibid., p. 2.

9/ Ibid.

## Resolving Early UR Problems

Beginning under Medicare, many hospitals and other providers of care desiring program participation had to institute UR committees and procedures where these had not existed before. Naturally, problems arose during the early implementation of the utilization review regulations. After careful study and consideration, however, these were resolved by the following SSA directives:

- (1) The necessity for inpatient admission could be reviewed at any time.
- (2) The decision of a UR committee in one hospitals was not to be considered binding upon the UR committee in another hospital.
- (3) For beneficiaries admitted to a hospital prior to their entitlement to hospital insurance benefits under Medicare, the day they became entitled to benefits was to be counted as the first day of their period of extended stay.
- (4) In considering whether further inpatient hospital stay was medically necessary, the UR committee was required to assess the availability and appropriateness of alternative facilities and services. The utilization review committee should not, however, take into account the patient's financial status or his Medicare coverage. Specifically, if the committee determined that the beneficiary could be discharged to an extended care facility (ECF), it had to ascertain whether a bed was available to the patient in the area. 10/ If there was a bed, the committee should find that further hospital stay was not medically necessary. If no bed was available in a local participating ECF, the committee should find that further hospital stay was medically necessary and should document the basis for its decision in committee records. In making this determination, the UR committee should not take into account a beneficiary's personal preference for one extended care facility over another. If the utilization review committee believed that a beneficiary required services other than inpatient hospital or extended care services (such as custodial, outpatient, or home health care), it should find that further inpatient hospital stay was not medically necessary. This determination should be made without regard to the availability of such kinds of care or, in the case of home health agency services, the lack of a home to which the patient can be discharged. 11/

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10/ "Area" should not be defined in such a way as to require the beneficiary to be separated from his family or transported over great distances.

11/ U.S., Department of Health, Education, and Welfare, Social Security Administration, Health Insurance for the Aged: Hospital Manual, Form HIM-10 (Baltimore: Social Security Administration, April 1967), pp. 48-50.



- (5) While the attending physician might advise his patient personally of an adverse UR committee decision, it was still necessary for the committee to give timely written notice of its decision to the beneficiary. 12/
- (6) Medicare liability for inpatient hospital services had to cease with the end of the third day following the day the institution received notice of an adverse decision. 13/
- (7) Payments that a hospital might wish to make to physicians for serving on its utilization review committee(s) could be considered as an allowable hospital cost under Medicare only if its UR plan applied to all of the hospital's inpatients. Other expenses incurred in connection with the implementation or operation of the UR plan (such as data purchasing, clerical staff services, other administrative staff services, and the services of non-physician professional personnel) were reimbursable to the institution to the extent that such costs related to health insurance program beneficiaries. 14/
- (8) There was to be a 20-day inpatient payment limitation which SSA could impose on a hospital that failed to perform timely review of long-stay cases. Such a penalty would be in lieu of terminating its agreement with the hospital. The limitation could be removed when the deficiency was corrected and was not expected to recur. 15/

#### Continuing Interpretation of the Law

The interpretation of the Medicare Act is a continuing administrative and judicial process. With respect to hospital utilization review, some possible future changes in the regulations have been proposed or discussed. Case law interpretation of hospital UR is left to the courts.

A new policy has recently been approved for publication in the Federal Register as a Notice of Proposed Rule Making (the step preceding promulgation of the regulation). If formalized, the proposal would exclude from UR committee membership in a hospital or extended care facility

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12/ Ibid. This policy reflects a change from the earlier one which provided that the attending physician's personal contact with his patient would constitute proper notification to the beneficiary if the UR committee approved such notice [U.S., Department of Health, Education, and Welfare, Social Security Administration, Health Insurance Policy Manual, Form HIM-20 (Baltimore: Social Security Administration, July 1966), Section 130 (c)].

13/ Hospital Manual, op. cit., p. 49.

14/ Health Insurance Policy Manual, op. cit., Section 13 (f).

15/ Health Insurance for the Aged: Hospital Manual, op. cit., p. 50.

any physician who has a financial interest in the institution or the power, directly or indirectly, to influence or direct the actions or policies of the facility. 16/ Non-physicians with a financial interest in an institution, however, may continue to serve on the utilization review committee, as these members usually do not have voting privileges. Where a physician with financial interest or control in an institution serves on an area-wide or other outside UR committee (that is, one serving a number of providers including his own), he may continue his membership providing he does not review any data or cases from his own facility.

The primary purpose of this proposal is to prevent a conflict of interest from interfering with decisions regarding the medical necessity for continued inpatient services. It is also intended to bring the Medicare requirements into conformity with those of Medicaid (Title XIX).

Other possible administrative changes remain for the future. These include: the imposition of limits on acceptable definitions of extended duration of care (this is currently relegated to the discretion of the UR committee); a regulation requiring periodic reviews of extended cases at specified intervals subsequent to the initial review; and the acceptance of a UR standard established by the Joint Commission on the Accreditation of Hospitals as the full substantive equivalent of Medicare's utilization review condition of participation. 17/ This last development would permit JCAH-accredited hospitals to be deemed in compliance with all conditions of participation in the Medicare program. 18/

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16/ This policy is now part of the SSA regulations on utilization review.

17/ The JCAH's Standards for Hospital Accreditation (December 1965) contained a requirement for the: review of hospital admissions with respect to need for admission, length of stay, discharge practices, and evaluation of the services ordered and provided (commonly the Utilization Review Committee function), p. 8. This JCAH requirement, however is not the full substantive equivalent of Medicare's utilization review condition for hospital participation. In contrast to Medicare's requirement, the JCAH standard refers to a UR "function," but not specifically to a UR physician committee (Section 1861 (k)(2) of the Act). In addition, it is silent with respect to a required review of extended duration cases (Section 1861 (k)(3)) and also silent concerning the procedures to be used when the UR committee finds that further inpatient stay is not necessary (Section 1861 (k)(4)).

18/ J. Everett McClenahan, "Utilization Review Under Medicare," Hospitals, Journal of American Hospital Association, September 1, 1965, p. 58.



No legal issues involving UR committees or case decisions have yet been raised in the courts. It can nevertheless be anticipated that the relationships between the hospital, the attending physician, the organized medical staff, and the board of trustees will have an important bearing upon the resolution of such potential legal questions as: (1) the liability for a patient's aggravated illness or death due to an early hospital discharge that was based on the recommendation of the utilization review committee but was contrary to the wishes of the attending physician; (2) the negligence ascribable to an attending physician in such a situation if he places financial considerations above the quality of medical care he renders to the patient; and (3) the practical consequences that should ensue if a physician refuses to follow UR committee recommendations. 19/

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19/ For a fuller discussion, see Peter J. Buttaro, "Utilization Review Committee--Some Legal Implications," Hospital Progress, June 1969, pp. 79-81.

## Chapter 2. HISTORY OF UTILIZATION REVIEW: EARLY DEVELOPMENT AND SOME PIONEERING THIRD-PARTY REVIEW ACTIVITIES

### Evolution of the Utilization Review Concept

The concept of utilization review, as written into the Social Security Amendments of 1965, was a device intended to satisfy several countervailing demands and pressures: minimum government management of medical care; limited private third-party management; acceptability to the medical profession; adequate controls to protect the consumer against excessive costs; and assurance that funds expended under the program would be paid only for high quality, medically necessary services.

Today, in the 1970's, the concept of utilization review still evidences a concern for the development of utilization, cost, and quality controls in health care institutions.

The Medicare program did not innovate utilization review. On the contrary, the framers of the law found precedents for this provision in some of the country's hospitals, which had been using this mechanism to advantage before Medicare's enactment. A few institutions had introduced UR committees as early as the 1950's, where several factors had caused the utilization review concept to take root. For one, a chronic shortage of beds in many hospitals stimulated efforts toward bed control. Another impetus occurred on April 15, 1958, when Pennsylvania's insurance commissioner, Francis R. Smith, acted on an application for a Blue Cross rate increase. He criticized hospital administrators, the medical profession, and the Blue Cross organizations for inaction in the face of spiraling hospital costs. Citing unnecessary admissions and protracted lengths of stay as important causes of high costs, he strongly recommended more efficient and more economical hospital management. 1/ An additional spur to UR development came from physicians themselves, who were concerned with evaluating the necessity for and quality of the services they performed.

In 1962 an ad hoc study of the character and effectiveness of hospital use was published. 2/ In this study, conducted under the auspices of the University of Michigan's Bureau of Hospital Administration, panels of physicians each considered diagnoses within their areas of expertise and developed criteria of hospital utilization and standards of care. The best current practice--predetermined in this way by the method of physician

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1/ Mary Lee Ingbar and Lester D. Taylor, Hospital Costs in Massachusetts: An Econometric Study (Cambridge: Harvard University Press, 1968), pp. 2-3.

2/ T. B. Fitzpatrick, D. C. Riedel, and B. C. Payne, "Project 2: Character and Effectiveness of Hospital Use" in Walter J. McNerney, et al., Hospital and Medical Economics, (Chicago: Hospital Research and Education Trust, 1962), pp. 361-591.

consensus--was then used to facilitate case reviews. 3/ In fact, the establishment of these criteria 4/ "in advance of the case review and independent of the individual case content" led to an objectivity and uniformity in subsequent case review which exceeded that deriving from the application of individual reviewers' unexplicit opinions. 5/ This process of collective judgment not only established flexible, meaningful criteria to guide evaluations of inpatient medical services rendered, it also proved to be an important step in defining how peer review was to be performed.

The Michigan criteria for various diagnostic categories included: indications for admission; logical substantiation of admitting diagnoses; hospital services required or to be avoided; hospital services consistent with the diagnoses; the optimum, average, or expected length of stay; possible complications or secondary diagnoses necessitating additional inpatient care; and indications for discharge from the hospital. Criteria for selected diagnostic categories would further specify indications for drug utilization or blood transfusions and the utilization of pertinent ancillary services in patient monitoring and therapy. 6/ Additional criteria of efficiency would relate to time lapses such as those between: requests for laboratory tests and the posting of results to the patient's chart; confirmation of the diagnosis and initiation of treatment; requests for and the conduct of consultations; and medical readiness for discharge (or transfer to an alternative, less costly institution for convalescent or custodial care) and actual departure.

The Joint Commission for the Promotion of Voluntary Prepayment Health Plans (composed of representatives from the American Medical Association, the American Hospital Association, the Blue Cross Association, and the National Association of Blue Shield Plans) sponsored the First National Conference on Utilization in 1962. Its express purposes were: (1) to examine the extent to which patients use hospital and physician services; (2) to agree upon uniform methods of measuring such utilization; and (3) to apply study results to the improvement of patient care. 7/

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3/ American Medical Association, Utilization Review Handbook, pp. 83-100.

4/ Not necessarily formulated in quantitative terms.

5/ Beverly C. Payne, "Continued Evolution of a System of Medical Care Appraisal," Journal of the American Medical Association, August 14, 1967, p. 538.

6/ Morris London, "How a Utilization Committee Can Contribute to Administration," Hospitals, Journal of the American Hospital Association, July 1, 1964, p. 35.

7/ Proceedings, First National Conference on Utilization (Chicago: The American Medical Association, 1962), p. 1.



The Joint Commission on the Accreditation of Hospitals (JCAH) and its member organizations also followed early utilization review efforts with interest and encouraged these new programs by emphasizing their educational value. In 1963, the JCAH issued a statement supporting the principle of evaluating the quality of medical care on the basis of documented evidence to support diagnoses, treatment, and justified utilization of hospital facilities. 8/

The early hospital UR efforts were primarily educational in intent. Reviews were generally limited to examination of the necessity for admissions (especially those classified as emergency admissions to the hospital) and justification of lengthy durations of stay (particularly in those cases questioned by third-party payers). Many of the institutions which formed UR committees already had tissue and medical audit committees; where these operated, they continued to assess the quality of care rendered in the hospital and certain of the professional services furnished.

The next chapter will survey two prototypical hospital UR committees and three extra-institutional data compilation services which developed prior to Medicare to lend support to early utilization study efforts. The data compilation services are important because they foreshadowed later UR statistical support activities and because they themselves, like most of the other pioneering efforts in the field of utilization review, are still notable today.

The remainder of this chapter will describe some of the early general third-party claims review activities upon which much of the substance of the UR requirement of the Medicare law was based: the county medical service bureaus in Washington State, the California foundations for medical care, the Alameda-Contra Costa Medical Society program, and the AID plan of New Jersey's Blue Cross Association.

Medical society review committees are most often concerned with appraising medical standards, evaluating the quality of care rendered by individual physicians, resolving fee problems, and handling other complaints received from the public or from third-party sources. The distinction between medical society review committees and most prepayment organization review mechanisms is that the former usually integrate physicians' review responsibilities with the payment process itself, while the latter function as courts of appeal with respect to the redress of grievances. 9/ These spheres of interest may overlap considerably, however, though they are generally distinguishable from those of hospital UR committees.

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8/ Ernest C. Laetz, "The Birth and Purpose of a Hospital Utilization Committee," Hospital Accounting, January 1967, p. 29.

9/ Murray Klutch, "Medical Society Review Committees," Inquiry, September 1965, p. 71.

### The Medical Service Bureaus in Washington State

The county medical service bureaus of Washington State consist of 22 medical society-approved prepayment plans which established certain professional review mechanisms very early. The Pierce County Industrial Medical Bureau, Inc., was formed in 1917; the Whatcom County Physician's Service, Inc., incorporated in 1932; the Medical Service Corporation of Spokane County was incorporated in 1933. Their mechanisms for claims review were and remain confined basically to the determination of the extent of the medical service bureaus' contractual liability.

The medical director of the Pierce County organization spot checks area hospitals to verify or question the reasons for admission and the lengths of inpatient stays of selected bureau patients. 10/ Adverse findings do not mandate hospital discharge; rather, as under Medicare, they end further program liability for additional inpatient charges incurred. The medical director of the Whatcom County organization makes two on-site hospital visits a week to each of the two community hospitals serving bureau patients. This continuous audit and the additional review of all surgical, radiological, and exceptional claims are intended to decrease the average length of hospital stay of bureau subscribers relative to that of all other inpatients. 11/ The medical director of the Spokane County corporation visits area hospitals daily to check subscriber records and to assess the amount of his organization's liability. He obtains the diagnosis for each case and also reviews charts to determine if the services rendered were for diagnostic purposes only (not covered by the contract). 12/ According to the medical service bureaus, their claims reviews intrude as little as possible in individual physicians' practice of medicine. 13/

### The California Foundations for Medical Care

There are 24 counties in California (as well as a few single-county programs in Hawaii, Ohio, New York, Oregon, Indiana, and Wisconsin) which have groups with foundation-sponsored coverage. Of these foundations, which are incorporated bodies usually administered by the county medical societies, San Joaquin has by far the largest program. Six additional California counties, including Riverside, have foundation-type plans. The foundation's role in medical care financing is essentially one of setting basic standards for hospital, surgical, and medical coverage under

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10/ American Medical Association, Report of the Commission on the Cost of Medical Care, Vol. II: Professional Review Mechanisms (Chicago: American Medical Association, 1963), p. 51.

11/ Ibid., p. 55.

12/ Ibid., p. 59.

13/ Ibid., p. 62.



insurance policies to reflect the county's pattern of practicing medicine and, further, performing certain concomitant claims review functions. All physicians who participate in programs under foundation sponsorship have agreed to accept the fees specified in the foundation's maximum fee schedule as payment in full for their services. 14/

The San Joaquin Foundation for Medical Care, 15/ formed on March 1, 1954, has seven committees to carry out its program, including the review committee. After the foundation office verifies subscriber eligibility and the coverage of the services involved, this committee reviews all claims medically. In the medical review, cases are checked to determine the consistency of the services rendered with the current diagnosis; the proportionate number of home, office, and/or hospital visits; and the consistency of the length of hospital stay with good medical practice in the area. 16/ First the individual reviewing physician attempts to resolve the cases, contacting the attending physician if necessary; then the whole committee considers those questions or reservations which remain. Whenever the review committee questions the length of inpatient stay, it brings unusual patterns of medical practice to the attention of the physician involved rather than reducing payment to the hospital. Acting as the agent for the insurance underwriters, the San Joaquin Foundation pays approved claims directly from its own office. In the vast majority of cases, the insurance companies do not authorize claims payments against Foundation advice, even though the ultimate administrative decision remains theirs.

The Riverside Plan 17/ was organized in May 1959 as part of the Riverside County Medical Association. Participating physicians are bound to the decisions which its review committee renders as to the usual, customary, and reasonable nature of the fees charged. The criteria used to judge the appropriateness of fees are also in keeping with the relative value principle for the billing of professional services covered by insurance programs. In addition to examining the pricing of medical services, the Riverside Plan committee reviews professional practice. To a limited extent it is able to influence the manner in which participating physicians provide medical care, by raising questions concerning the appropriateness of procedures performed and deviations from the normal and accepted medical practice in the community (as in the case of

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14/ Ibid., p. 3.

15/ Ibid., pp. 5-9.

16/ Ibid., pp. 11-13. The Santa Clara Foundation for Medical Care, established in March 1960 and patterned after the San Joaquin Foundation in its purpose and minimum standards, also follows the same administrative procedures and medical checking in its claims review activities.

17/ Ibid., pp. 15-19.

excessively long hospital stays). Although the legal responsibility for the final disposition of claims payments rests with the California Physicians' Service, members of the review committee believe that their work contributes much to the knowledge, understanding, and sense of responsibility of the medical profession in Riverside County.

#### The Alameda-Contra Costa Medical Society's Review Program

In 1945 the Alameda-Contra Costa County Medical Association formed the Committee on the Distribution of Medical Care in Oakland, California, to consider and act upon all problems relating to the distribution, availability, and economics of medicine. Initially, its main concern was with the complaints of individual patients against physicians.

In 1953 the California Physicians' Service approached the committee and asked for assistance in unusual or disputed cases. The next year, in response to the committee's active solicitation, various other insurance groups, health and welfare trust funds, and prepayment plans began to refer cases to it for arbitration. By the end of 1961, the committee's structure changed from seven branches under one overall "association" committee to four "association" committees, with discontinuance of the branch committee organization. These committees accept all kinds of cases for review, including those which involve "the amount of a fee, the length of a hospital stay, possible unnecessary use of hospital facilities, or an allegedly prolonged series of home or office visits." 18/

#### The Nassau County Medical Society Program

Created in 1960, the Nassau County (New York) Medical Society's Program to Conserve the Public's Health Care Dollar was patterned after the Pennsylvania medical care program (HUP) to be described in the next chapter. The Nassau County program developed from the activities of the medical society's Voluntary Health Insurance Committee. This functioned during the period 1958-1960 in a liaison capacity between physicians and commercial insurance carriers, as the carriers wanted to be able to question and seek advice on the reasonableness of certain fees charged without instigating grievances.

In Nassau County there are 11 hospital utilization committees, one in each of its voluntary and proprietary general hospitals. In connection with these, the county medical society has established three committees to carry out the objectives of its medical care program: (a) a coordinating committee, (b) a review committee, and (c) a medical staff liaison committee. 19/

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18/ Ibid., p. 27.

19/ American Medical Association, Report of the Commission on the Cost of Medical Care, op. cit., pp. 39-41.



The coordinating committee is composed of representatives from the hospitals in Nassau County, the insurance industry, Blue Cross, Blue Shield, and group practice prepayment plans. It exercises responsibility for supervising and publicizing the activities of the medical society's conservation program. The committee also receives the complaints of individual physicians against health insurance companies or the independent health plans.

The review committee, operative since early 1961, is composed of 17 physicians appointed by the president of the medical society to serve overlapping three-year terms. The committee members review cases submitted from all sources (insurance companies, Blue Cross, other prepayment plans) to determine whether the physicians' fees are consistent with the usual and customary charges for such services in the community. In arriving at its recommendations, the review committee uses internal unpublished data from a relative value study conducted by the medical society. Its deliberations take into consideration all pertinent claim information, including the patient's financial resources; the type and complexity of the services rendered; complications; the duration of hospitalization and the period of after care; the type of inpatient accommodations used; and the physician's specialty status and length of time in practice.

In its first five years of operation, this committee reviewed only about 60 cases. The significance of this low volume is that it demonstrates physicians' substantial adherence to acceptable charges. Even more important is the long-range educational impact of the review committee's continuing dialogue concerning the mutual cooperation necessary between insurance and medicine. 20/

The medical staff liaison committee is composed of one medical staff representative (usually the chairman of the utilization committee) from each of the 11 participating hospitals. Its function is to encourage and assist the hospitals in establishing and operating their own UR committees and in conducting appropriate studies of patterns of ineffective use. Some of its early projects involved information supplied by the participating hospital utilization committees: an examination of the number of cases whose length of stay exceeded 15 days and the number of 24-hour admissions during August 1960; a scrutiny of the number of unnecessary admissions among patients discharged within 48 hours during November 1960; and a review of the case records of discharged patients that Blue Cross had identified as having lengths of stay significantly different from the average for their respective age groups.

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20/ Voluntary Health Insurance Committee, Pilot Study of Hospital Use in Nassau County (New York: Nassau County Medical Society, 1965), p. 6.



The medical society's Voluntary Health Insurance Committee initiated a Pilot Study in 1963 to examine the feasibility of using predetermined medical criteria as the means of evaluating the propriety of hospital use in Nassau County. The committee utilized the assistance of the Health Insurance Council (representing the insurance industry) and consulting services obtained through the Community Service Program of the University of Michigan's Bureau of Hospital Administration. It patterned its design after the University of Michigan study of the "Character and Effectiveness of Hospital Use." 21/ The committee selected seven diagnoses for inclusion in this project. 22/

Five short-term hospitals in Nassau County participated in this Pilot Study. The hospital utilization committees reviewed their respective cases having the selected diagnoses. Following uniform procedures, the committees applied the criteria for each diagnosis that special panels of Nassau County physicians had preestablished. The successful completion of the Pilot Study in 1965 demonstrated the utility of findings derived from this approach. The participating hospitals then determined what action could be taken to alleviate the problems identified. A follow-up survey was undertaken to assess the effects of their corrective efforts.

The demonstrated feasibility of the predetermined criteria technique of case evaluation permitted its subsequent extension. 23/ With methodological improvements, it was implemented on a county-wide basis.

#### The Approval by Individual Diagnosis Program

Chiefly a recertification program, Approval by Individual Diagnosis has had a lengthy evolution. In 1955 the Hospital Service Plan of New Jersey (New Jersey Blue Cross), in lieu of issuing hospitalization approvals for 120 full days, began issuing initial approvals for 28 days only, with 21-day reapprovals based upon physicians' written statements concerning the necessity for continued hospitalization. Starting July 1, 1963, initial approvals were confined to a 14-day period, with physician recertification required for each 14-day extension of benefits.

Also in July 1963, a Quadripartite Committee composed of representatives from the New Jersey Medical Society, the New Jersey Hospital Association, Blue Cross, and Blue Shield was formed to explore and act jointly on programs related to improving hospital efficiency and economy. 24/ From

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21/ See p. 8.

22/ Bronchopneumonia (in children), urinary tract infection, acute myocardial infarction, uterine fibromyoma, cholecystitis and cholelithiasis, fracture of the neck of the femur, and diabetes mellitus.

23/ Voluntary Health Insurance Committee, op. cit.

24/ Raymond Furbacher and Gerald Schechter, "Recertification Programs," Inquiry, September 1965, pp. 59-60.

this emerged the four-member Permanent Committee on Blue Cross and Blue Shield to concentrate primarily on all facets of hospital utilization and to furnish hospital UR committees with necessary statistical and analytical data. 25/

New Jersey Blue Cross developed a three-phase program to meet these objectives. Phase I reports, which hospitals received in February 1964, consisted of compilations of such historical statistical comparisons as: total lengths of stay for the total population and for Blue Cross patients only; "hospital operating costs and length of stay by bed size group for the previous five years;" and hospitals' percentage occupancy in relation to length of stay. 26/ Phase II reports, mailed to all hospitals in June 1964, contained a diagnosis-by-diagnosis comparison of the average length of 1963 stays for each member hospital against the composite Blue Cross population for all New Jersey hospitals. Phase III, distributed in late 1964, provided a computer printout listing all Blue Cross patients' claims for each hospital in alphabetical order by minor diagnostic categories within major ones. 27/

The four-member committee then conceived the AID program in July 1964 "as a system whereby the number of benefit days initially approved for a patient's hospitalization would be dependent upon the admitting diagnosis." 28/ To establish this number of initially allowable days before recertification would be desirable, hospital medical staffs received copies of the Phase II report, reviewed it, and submitted their recommendations. The committee then in most cases adopted their modal response for each diagnosis and proceeded to implement the program on May 1, 1965.

In contrast to post-discharge case review, the AID recertification requirement involves a concurrent examination by the physician of the continuing need for hospitalization after the elapse of an estimated or "normal" length of stay based on the admitting diagnosis. 29/ Upon recertification, Blue Cross continues to honor its contract with the beneficiary. Hospital utilization committees are supposed to review the charts of recertified (extended duration) cases, 30/ as well as set policies regarding recertification standards and discipline.

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25/ David R. Bailey and Donald C. Riedel, "Recertification and Length of Stay: The Impact of New Jersey's AID Program on Patterns of Hospital Care," Blue Cross Reports, July 1968, p. 2.

26/ Furbacher and Schechter, op. cit., p. 60.

27/ Ibid. and Bailey and Riedel, loc. cit.

28/ Bailey and Riedel, loc. cit.

29/ James M. Ensign, "Third-Party Review Programs from the Blue Cross Vantage Point," Journal of the American Medical Association, June 13, 1966, pp. 1006-1007.

30/ Bailey and Riedel, op. cit., p. 3.

The effectiveness of the AID program in New Jersey hospitals was examined first in a study conducted by New Jersey Blue Cross and reported by George Mikelbank in a paper presented on November 12, 1966, before the Program Area Committee on Medical Care Administration of the American Public Health Association. Using claims data centrally maintained by the plan, the study concluded that "after one full year of operation, the AID program had resulted in the reduction of approximately one-half day in the overall average length of stay of Blue Cross patients for the 100 New Jersey general hospitals." Also, the percent of paid cases discharged within the AID limit increased in the first post-AID year in 79 of the 89 diagnoses for which Blue Cross paid at least 500 cases. 31/

Bailey and Riedel 32/ subsequently explored the impact of the AID program on average lengths of stay and on the percentages of patients discharged within AID limits for 12 diagnostic categories. They utilized quarterly data supplied by New Jersey Blue Cross for one pre-AID and one post-AID year's experience. In addition, they selected a probability sample of 83 voluntary short-term hospitals in the State to study patient distributions according to actual lengths of stay, by hospital and by diagnosis. They concluded that the pattern of hospital use, for all but one diagnosis studied and in most of the sample hospitals, demonstrated the immediate impact of the AID program, an effect that was apparently unrelated to the hospitals' size or educational programs. 33/ As time passed and familiarity with the AID program increased, however, its marked initial influence on the pattern of hospital responses lessened considerably, in some cases steadily decreasing to or even below the pre-AID level.

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31/ Bailey and Riedel, op. cit., pp. 3-4.

32/ Ibid., pp. 4-10.

33/ The institutions' utilization review committee characteristics were unavailable for inclusion in this study.



### Chapter 3. HISTORY OF UTILIZATION REVIEW: PROTOTYPICAL COMMITTEES AND DATA COMPILATION SERVICES

This chapter includes the early development of utilization review with a survey of the activities of two prototypical hospital UR committees: the Jewish Hospital in Cincinnati, Ohio, and St. Joseph Mercy Hospital in Ann Arbor, Michigan. It also examines three well-known extra-institutional data compilation services: the Professional Activity Study (PAS), the Hospital Utilization Project (HUP), and the Inpatient Discharge Statistics program of Northeast Ohio (IDS--later known as QUEST). Finally, this chapter traces those steps which helped formulate the UR condition of participation to be met by hospitals desiring certification under the Medicare program.

#### Prototypical Hospital UR Committees

##### The Jewish Hospital in Cincinnati, Ohio

One hospital precursor of current UR efforts was the Screening and Discharge Committee which the Jewish Hospital in Cincinnati, Ohio, organized in 1951. An acute bed shortage and a backlog of several hundred cases awaiting admission prompted its formation. The committee initially reviewed the need for admission classified as "emergency" and "urgent." Since then, its review activities have extended to medical cases subsequently transferred to the surgical service and to examination of the promptness of discharges as soon as medically feasible. This hospital UR committee has the distinction of being the oldest one still in operation.

##### St. Joseph Mercy Hospital

Another prototypical UR plan was that of St. Joseph Mercy Hospital in Ann Arbor, Michigan. The utilization review function here inaugurated in 1963, was essentially a part of the medical audit program. Through post-discharge case review, the hospital's Audit Committee simultaneously evaluated the effectiveness of hospital use and the quality of care rendered.

To measure the effectiveness of hospital utilization, the committee has applied pre-established criteria to each diagnostic category under study. The criteria employed are refinements of those first developed in the Michigan Study of Hospital and Medical Economics 1/ for application in the State's voluntary and proprietary hospitals. The Audit Committee of St. Joseph Mercy Hospital systematically and repeatedly has used the predetermined criterion approach in evaluating several diagnoses. 2/

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1/ McNerney, et al., Hospital and Medical Economics, I, pp. 361-591.

2/ Acute myocardial infarction, cholecystitis and cholelithiasis, bronchitis, abortion, and urinary tract infection.

To conduct the utilization review and medical audit, record-room personnel complete work sheets showing objective data for the universe or sample of cases to be studied. A team of five physicians then jointly considers the work sheets and original patient charts in light of the established criteria for the diagnosis or diagnoses involved. The physicians make the final evaluations regarding effectiveness of hospital utilization and quality of care rendered, reporting them as the conclusions of the Audit Committee. Machine tabulation of the work sheets and compilation of all pertinent information (using PAS services described below for assistance) then readies reports for formal presentation to the hospital's executive committee, general medical staff, and administration. The intent of such reports is primarily educational.

### Data Compilation Services

#### The Professional Activity Study

The Professional Activity Study (PAS) commenced its continuing study of patterns of patient care in 1953 by tabulating and analyzing data obtained routinely from a group of 12 small subscribing hospitals in southwestern Michigan. Originally, grants from the W. K. Kellogg Foundation supported the project as a pilot study of means of using clinical information to improve the overall health care of patients.

Toward the end of 1955, the American College of Physicians, the American College of Surgeons, the American Hospital Association, and the Southwestern Michigan Hospital Association cosponsored the founding of the Commission on Professional and Hospital Activities to direct the PAS work. The Commission, located in Ann Arbor, Michigan, is a permanent, non-profit, private organization which makes its data compilation services available internationally to subscribing hospitals and engages in related research activities, including the Medical Audit Program (MAP). <sup>3/</sup> By March 1959, there were 104 participating hospitals in 21 different States, and as of January 1965, this number had grown to 353.

Professional Activity Study data begin in the medical record department of each participating hospital, where the medical record librarian abstracts information from the chart of every discharged patient. Abstract preparation involves a 5-minute coding process, designed both to minimize the amount of writing necessary and to facilitate subsequent machine handling of the data. Such items as identification of the hospital, physician, and patient; the patient's age, sex, and discharge status (alive, dead, or stillborn); the source of payment; diagnoses; operations, use of anesthesia, or therapy; complications; laboratory analyses and

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<sup>3/</sup> William H. Kincaid, "The Professional Activity Study," Inquiry, September 1965, p. 30.



tissue study results; length of hospital stay; etc., can all be coded onto the abstract form. Hospitals collect their abstracts for forwarding to Ann Arbor; there they are controlled, edited and cross-checked, keypunched, and entered into the Commission's computer system for storage, retrieval, and analysis. 4/

The PAS operation is a centralized medical record information system 5/ which summarizes hospital-prepared abstracts of the records of individual patients to generate certain statistics and indexes. Each subscribing hospital routinely receives an integrated set of six computer-produced monthly reports: two statistical analyses of discharges (one by hospital service, the other by disease category) and four different listings of individual patient record abstracts (indexed by patient number, by final diagnosis explaining the admission, by operation, and a listing of all deaths). Semiannually, each participating hospital receives consolidations of these monthly reports, as well as indices of diagnoses (i.e., listings of patient record abstracts arranged by diagnoses), operations, attending physicians, and surgeons (all completely cross-indexed). 6/

PAS data provide physicians working on medical staff committees with a convenient display of hospital practice. This information is intended to facilitate their considerations of patient load, surgical success, laboratory utilization, tissue study results, diagnostic accuracy, high mortality areas, length of stay, and many other crucial aspects of patient care. In addition, the Commission responds to requests for special studies based on data from individual subscribing hospitals. It also regularly publishes results of comparative studies concerning certain aspects of patient care across a group of participating hospitals. All these PAS reports serve as indicators to individual member hospitals of the necessity for remedial action and also furnish them with control-group or baseline data for use in evaluating current hospital practice. 7/

To augment PAS, a new subsystem has been designed for the analysis of length of stay practices. This package program provides for carrying out comparative length of stay studies repetitively for hundreds of hospitals, the statistics for each institution being adjusted for or related to its particular patient mix. 8/ A master table of length of

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4/ Ibid., p. 31.

5/ Commission on Professional and Hospital Activities, Inc., The Aged Hospital Patient: A Statistical Profile (Ann Arbor, Michigan: Commission on Professional and Hospital Activities, 1965), p. 1.

6/ Kincaid, loc. cit.

7/ Ibid.

8/ Eric Leighton and Peter Headly, "Computer Analysis of Length of Stay," Hospital Progress, April 1968, p. 68.

stay was first prepared using PAS abstract data for patients discharged in 1963 and 1964. These data were stratified according to all possible combinations of the following factors: 183 final diagnoses causing hospitalization, five age groups, whether or not an operation was performed, and the presence or absence of secondary diagnoses. 9/ Groups of more recent patient abstracts (representing, for example, individual hospitals, particular physicians, or certain types of cases) can then be matched to their corresponding strata in the master table. Actual and expected (derived from the master table) average stays can be computed to measure "the extent to which the stay practice for that group differs from the composite of stay practice for similar patients in PAS hospitals." 10/ A statistical test of significance can be applied to these differences to screen out the most unusual cases. 11/

The Professional Activity Study thus has gathered clinical information together in one centralized research file, both to reveal variations in practice, as well as to reduce the total workload of hospital medical record departments in preparing routine hospital statistics and record indices. The next step, the display of clinical information in such a way as to give new insights into individual hospital and clinical service practices, has formed the basis for the Commission's other major activity, the Medical Audit Program (MAP). This serves to evaluate the quality of medical care as reflected in medical records. 12/ MAP is a device to examine the overall quality of hospital care and the performance of individual physicians and to identify problems for correction (rather than to censure individual physicians).

The Medical Audit Program, involving as it does a retrospective review of the propriety of hospital care, requires the participation of staff physicians in subscribing hospitals. These doctors perform extensive qualitative review of individual medical records, completing items on an audit sheet such as whether or not a death was preventable or probably preventable in a particular case. The Commission then compiles these case evaluations for each subscribing hospital and returns the medical audit findings quarterly to the institution for internal use. 13/

#### The Hospital Utilization Project

Beginning in 1958, the Tenth Councilor District of the Pennsylvania Medical Society (encompassing Allegheny, Beaver, Lawrence, and Westmoreland counties) directed the formation of UR committees in all

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9/ Ibid., pp. 68-69.

10/ Ibid., p. 69.

11/ Ibid., p. 70.

12/ Vergil N. Slee, "The Medical Audit," Hospital Progress, January 1965, pp. 106-111.

13/ Kincaid, loc. cit.



general hospitals in Western Pennsylvania. This action was undertaken to insure the necessity and appropriateness of all inpatient service provided 14/ and the high quality of medical care rendered. Establishment of these committees was also in response to the State insurance commissioner's 1958 directive accompanying his adjudication of a Blue Cross rate increase request.

In 1959 the State medical society first formally assumed responsibility for the administration of the Western Pennsylvania program and for its extension throughout the rest of the State. 15/ Also in 1959, the project's sponsors published a general guide to the establishment and functioning of an in-house hospital utilization committee. 16/ Although independent of the State medical society, Pennsylvania's hospital utilization committees have received its continuing encouragement and guidance.

Early utilization review in the Tenth Councilor District consisted largely of the

study of long-stay cases, random samples of discharge, or cases designated as questionable by third-party payers. In some instances attention was given to review of certain diagnoses, selected more or less at random, or to special situations within a hospital such as emergency admissions, short-stay cases, etc. 17/

Physician reactions to these early efforts included concern with excessive control over individual patient care, fear of punitive actions in apparent cases of abuse, and disdain for routine chart review tasks that were proving to be relatively fruitless. General dissatisfaction with early UR techniques led the Allegheny County Medical Society Foundation and the Hospital Council of Western Pennsylvania, in cooperation with the Western Pennsylvania Blue Cross Plan, to establish "a central service

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14/ American Medical Association, Report of the Commission on the Cost of Medical Care, p. 36.

15/ The project now includes 45 participating hospitals: 26 in the Pittsburgh area, 18 in the rest of Pennsylvania, and 1 in Ohio.

16/ Sidney Shindell and Morris London, HUP: A Method of Hospital Utilization Review (Pittsburgh: University of Pittsburgh Press, 1966), pp. 57-64. This guide outlines the purpose of such a committee; its organization, size, composition, department representation, frequency of meetings; relationships with other medical staff committees, chiefs of service, and the hospital administration. It also recommends a manner in which to function, including the number and classes of charts to be reviewed, obtaining additional information from the attending physician, and the appropriate disposition of recommendations emanating from committee case reviews.

17/ Hospital Utilization Project, Criteria for Effective Utilization Review (Pittsburgh: Hospital Utilization Project, January 1969), p. 1.



designed to assist hospitals and physicians in all aspects of utilization review activity." 18/ Organized in 1963, this Hospital Utilization Project (HUP) was a non-profit, voluntary agency whose purpose was to insure appropriate, high quality medical care through an educational review process involving the medical staffs of participating hospitals. HUP was designed as a regional program to provide computerized statistical and comparative data by mail, as well as to furnish consultative services and personal staff assistance to participating hospitals. 19/

The Hospital Utilization Project began to function in a setting of several basic review mechanisms. 20/ The UR committees were attempting to identify and analyze factors contributing to any unnecessary or ineffective use of inpatient services and facilities and to make recommendations designed to minimize ineffective utilization. They were also examining cases referred by the district Blue Cross review committee. In addition, representatives of the hospital committees were serving on their district health insurance review committee to evaluate insurance carriers' or physicians' complaints and questions regarding the quality of care, reasonableness of fees, proper utilization, delays in claims payment, questionable claims practices, and unreasonable demands for information.

The Hospital Utilization Project is essentially a six-step approach to the identification of areas of hospital practice that warrant more intensive scrutiny by individual hospital utilization committees. 21/ HUP activities include both screening case data to reveal unusual experience and assisting hospitals in identifying their customary patterns of medical practice and administrative procedures. Much of its methodology is based on that of PAS and of the University of Michigan Study on Hospital and Medical Economics. 22/

The first step in the HUP process is the hospitals' abstraction of medical records in a way suitable for automatic data processing. The HUP abstract form used for this purpose includes space for identifying information and diagnostic data (completed for all discharged patients), as well as a second part for surgical or obstetrical data where pertinent. 23/

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18/ Ibid., p. 2.

19/ Ibid.

20/ American Medical Association, Report of the Commission on the Cost of Medical Care, p. 36.

21/ Shindell and London, op. cit., p. 7.

22/ Hospital Utilization Project, Criteria for Effective Utilization Review, loc. cit.

23/ Shindell and London, op. cit., p. 14.

The second step in this approach is for HUP to process the data from these completed case abstracts (controlling for accuracy and completeness) and to compile statistics on hospital use. Computer-prepared "printouts" provide hospital medical record personnel with monthly patient listings sequenced by diagnoses (and within each primary diagnosis, sequenced by length of stay), operations, and deaths; semiannual indexes of diagnoses and operations; a semiannual physician listing; and a monthly summary of discharges. 24/ The discharge analysis report consists of a service-by-service tabulation of "total cases, days of stay, age and sex distribution, emergency admissions, deaths, consultations, pay status;" the transfer, death, autopsy, and consultation rates; and the weekday on which admission and discharge occurred. 25/ Codes referring to physicians and surgeons, their type of practice, and specialty are employed to facilitate studies of utilization and of the types of case loads while preserving the anonymity of individual practitioners. 26/

The third step HUP takes is to summarize comparative interhospital length-of-stay experience for specific patient diagnoses. Fourthly, it constructs individual hospital profiles to reflect and to compare intrahospital length-of-stay experience for a number of diagnostic categories. 27/ The fifth step in the HUP approach, one taken by the UR committee in the participating hospital, is the institution of in-depth individual case reviews in those areas identified by HUP as unusual, abnormal, or otherwise deserving of further investigation. In conducting these case reviews, the utilization committee employs detailed worksheets and sets of diagnosis-specific, predetermined criteria that were established by panels of Western Pennsylvania specialists and adapted or modified by the individual hospital medical staff. 28/ The purpose of such case reviews is to discern characteristic practice patterns which account for the experience at variance with other hospitals in the community and to bring the UR committee's professional expertise to bear on problems of hospital use.

Lastly, HUP performs, where indicated, special studies of administrative and professional practices and procedures. Chief among these have been its operating room surveys. 29/ Its central consultative service provides requesting hospitals not only with extensive summaries of statistical findings, but also furnishes them with advice on case review methodology and suggests criteria for evaluating specific diagnostic categories.

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24/ Ibid., p. 22.

25/ Hospital Utilization Project: Data Processing Method (Pittsburgh: Hospital Utilization Project, September 10, 1969), p. 4. (Mimeographed.)

26/ Shindell and London, op. cit., p. 27.

27/ Ibid., p. 7.

28/ Hospital Utilization Project, Criteria for Effective Utilization Review, op. cit., pp. 3-4.

29/ Shindell and London, op. cit., pp. 51ff.



A more sophisticated data processing system became operational on July 1, 1969, to increase flexibility in the retrieval and use of HUP data. 30/ Under the new system two reports are generated periodically to compare certain quality indicators for a given hospital with other Pennsylvania hospitals of similar size, setting, staffing, and services. These reports are: (1) the Length of Stay Comparison--a hospital-by-hospital comparison (within homogeneous groups) of the average duration of stay for broad service groupings, such as Medicine and Surgery; and (2) the Quality of Care Comparison--a hospital-by-hospital comparison of such indicators as the gross, net, and post-operative death rates; the autopsy rate; the transfer rate; and the consultation rate. 31/

Another important facet of the new HUP system is the ability to generate special reports for individual hospitals rapidly upon request, through the utilization of pre-programmed report formats. 32/ To provide the necessary additional medical and administrative information, requesting hospitals complete an optional third portion of the abstract form. 33/ The available library of special reports includes the following subjects: source of referral patterns; the day of week, time, and status of admission patterns; service designation and special unit activity; medical staff activity; consultation activity and patterns; day of week of surgery; length of stay analyses (total, pre-operative, and post-operative); discharge status, day of week patterns, and destination patterns; analysis by patient characteristics; age distributions; pay status patterns; and Medicare analysis. 34/ Eventually, HUP will have the capability of developing more advanced research reports of the type requiring new or additional data input and individualized programming. 35/

One other current HUP development 36/ is the design and implementation of an automated medical care appraisal program to compare actual performance against predetermined criteria on an individual case basis. Use of this program by the hospital medical staff would enable the identification of

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30/ Irving A. Taylor, "Supplementary Material to Bulletin Dated September 10, 1969 on Health Data Information Systems Meeting--September 30-October 1," memorandum to Chief Plan Executives, Directors of Professional Relations, and Medicare Coordinators (Chicago: Blue Cross Association, September 17, 1969), p. 1.

31/ Ibid., p. 4.

32/ Ibid., p. 5.

33/ Hospital Utilization Project, Data Processing Method, op. cit., p. 2.

34/ Utilization Review--Medical Care Appraisal: The HUP Way (Pittsburgh: The Hospital Utilization Project, September 1969), Section 8: "Special Reports."

35/ Taylor, "Supplementary Material," p. 6.

36/ It may be noted in passing, though, that HUP has begun to assist the UR process in extended care facilities now as well as in hospitals. For details, see Paul M. Lewis, "The Hospital Utilization Project of Pennsylvania," Public Health Reports, LXXXIII (September 1968), pp. 748-749.

those specific cases within a diagnostic category which fail to meet the expected, pre-established norms of good medical care; whereas previous hospital profiles have permitted identification only of the patterns for various diagnostic categories. HUP's medical care appraisal program is presently being field-tested at two area hospitals. 37/

### The Inpatient Discharge Statistics Program of Northeast Ohio Hospitals

The Inpatient Discharge Statistics (IDS) program (now known as QUEST) originated in the Citizens Hospital Study of northeastern Ohio hospitals, particularly with respect to their costs and utilization experiences, from 1955 to 1961. The committee conducting the study included 22 representatives of the general public, management, labor, hospitals, the medical profession, and Blue Cross of Northeast Ohio. The study analyzed three months' data on costs and services, which were collected during 1957 for over 63,000 patients in a five-county area of northeast Ohio. One of the major recommendations of this study was that there be "fact finding studies of hospital cost, hospital use, hospital operations and the need for hospital facilities, on a continuing basis." 38/

Following this report, four Cleveland hospitals requested Blue Cross of Northeast Ohio to make its data processing staff and equipment available for the continuous compilation of facts regarding inpatient hospital care. A Research Committee of Hospital Administrators was established under the aegis of the Cleveland Hospital Council to develop such a centralized statistics program. A Research Committee of Medical Record Librarians later supplemented this committee, and in 1965 two additional committees were organized: a Research Committee of Physicians and a Research Committee of Hospital Trustees. 39/

Part I of the IDS program was inaugurated in 1958 with the dual purpose of automating the maintenance of medical record statistics for greater accuracy, efficiency, and economy; and amassing hospital utilization and other data for professional reports, medical research, and the planning of future health care facilities. 40/ Individual hospital UR committees could also use the data for their own utilization review purposes. The number of hospitals now participating in the basic IDS program and receiving its set of monthly reports has grown to 53.

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37/ Taylor, "Supplementary Material," op. cit., pp. 7-8.

38/ Blue Cross of Northeast Ohio, QUEST Manual (Cleveland: Blue Cross Association, 1967), p. 5.

39/ John R. Mannix, "QUEST" (Cleveland: Blue Cross of Northeast Ohio, n.d.), pp. 2-3. (Mimeographed.)

40/ John P. Sturges, Jr., "The Inpatient Discharge Statistics Program," Inquiry, (September 1965), pp. 39-42.

The basic set of eight monthly reports which participating hospitals receive consists of the following: 41/

- (1) discharge journal - on a daily basis, patient listings by medical record information, including race and religion; and daily and monthly totals of the number discharged (by newborns and others), the number of patient days, and the number of consultations given to patients on the day they were discharged;
- (2) financial class report - the number of patients and of patient days by source of payment;
- (3) geographic origin report - the monthly number of patients discharged from the various geographic areas;
- (4) discharge analysis by service - the number of patients discharged by age, sex, and service; the total number of patient days; the number of patients that had consultations, by service; the number of newborns by their birth weights; the number of deaths, including a separate count of those occurring within 48 hours of admission, and the number of autopsies;
- (5) physicians' index - patients and their medical record data listed by attending physicians; totals of the number of patients and of patient days, by physician;
- (6) consulting physicians' index - a listing of those physicians who gave consultations on patients;
- (7) report on the services requesting written patient consultations - the number of consultations requested by each service; and
- (8) report on the services giving written patient consultations - the number of consultations given by each service.

Beginning in 1965, annual reports have consolidated the information contained in the monthly reports of financial class, geographic origin, and discharge analysis by service.

Part II of the program, inaugurated in 1965, expanded its scope to furnish two quarterly indexes to those hospitals choosing to receive them. In July 1964, the IDS program began producing and distributing these listings of patient care, one by diagnosis and the other by surgical operation. By April 1967, the number of hospitals in this part of the program had increased to 39. 42/

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41/ Ibid.

42/ Blue Cross of Northeast Ohio, loc. cit.



To participate in either phase of the program, hospitals' medical record departments complete fact sheets on all patients discharged and forward them to the Blue Cross data processing unit. There the data are converted to punched cards for further processing of the required reports. In addition to these routine monthly and quarterly reports, the program has conducted several special studies involving data analysis for requesting hospitals. 43/

Part III of the IDS program, offered to interested medical staffs beginning in 1967, was planned as an aid to their review of the quality of care. Participating hospitals receive a listing of patient discharges by diagnosis, together with surgical procedures performed, and also presenting details concerning certain clinical findings and the diagnostic and therapeutic procedures administered. 44/ A similar report listed by attending physician is also produced.

Since 1967, the program has been known as "QUEST," an acronym whose letters represent the words "Quality, Utilization, Effectiveness, Statistically Tabulated." The acronym designates a program that involves "a search for facts as to quality, utilization, and effectiveness in delivering health care." 45/

#### The Medicare Law is Passed

Upon passage of the Medicare Law in 1965, a joint Federal task force was formed to devise the conditions of participation for all providers of Medicare services. It was composed of representatives from the Social Security Administration (SSA), the Public Health Service (PHS), and the Welfare Administration (now part of the Social and Rehabilitation Service) in the U. S. Department of Health, Education, and Welfare. The task force proceeded to study State licensing requirements, the accreditation and professional standards of national organizations such as the JCAH and the American Hospital Association, conducted its own research studies, and consulted with concerned organizations. It then drafted the conditions of participation for institutions who would provide services under Medicare, which conditions of course contained UR.

SSA subsequently convened special advisory groups which included, among others, noted non-Government consultants. One of these, the Work Group on Physician Participation, evaluated the draft version of the UR condition of participation. Its 39 members included representatives of

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43/ Sturges, loc. cit.

44/ Blue Cross of Northeast Ohio, loc. cit.

45/ Mannix, op. cit., p. 3.

the American Medical Association, the American Hospital Association, Blue Cross, private insurance carriers, PHS, and other interested organizations. This work group met in the fall of 1965 to give SSA a sounding board in regard to utilization review requirements, to enlist the continuing representation and efforts of the member organizations, and to develop cooperative interrelationships among these groups.

The Medicare law had also directed the establishment of the Health Insurance Benefits Advisory Council (HIBAC). To HIBAC were appointed prominent national spokesmen for the professional and insurance organizations and the general public, each of whom Medicare involved. The Council members discussed interpretations of the law, issues and policies, and, early in 1966, also reviewed and approved the draft of the several provider conditions for participation. The comments of all interested groups were solicited in this formative stage, both to consider all possible viewpoints in formulating policies and also to gain program support.

The draft conditions were then distributed to all identifiable potential providers of service and to the State agencies who would apply the standards to those institutions that sought to establish their program eligibility. This early release of the draft conditions thus permitted interested providers to consider instituting any changes necessary to put themselves in compliance with their particular conditions for participation.

On February 15, 1966, the draft conditions of participation for hospitals, a part of the proposed Medicare regulations, were published in the Federal Register 46/ to allow for comments. The public did not submit comments on the utilization review condition of participation; as a result, SSA made no significant changes in its draft language for this particular requirement. On October 18, 1966, all of the conditions of participation were promulgated as the regulations of the Secretary of Health, Education, and Welfare.

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46/ While extended care facilities also require acceptable UR plans, the ECF benefit did not become available until January 1, 1967.

## Chapter 4. THE ORGANIZATIONAL SETTING OF UTILIZATION REVIEW UNDER MEDICARE

The formal setting of hospital utilization review involves several levels of organization which differ in their roles and activities: the hospitals, State agencies, fiscal intermediaries, the Social Security Administration (SSA), and the Public Health Service (PHS). In addition to these are the regional data systems providing statistical support activities. The private, State, regional, and Federal organizations involved comprise a pluralistic program administration for UR under Medicare, or what has been called a "creative federalism." 1/ Strictly speaking, SSA and PHS do not "administer" hospital UR under Medicare, since this is the responsibility of the hospitals and physicians directly concerned; but they do perform certain essential coordinating, analytical, and support functions which are quasi-administrative in nature.

### Hospitals

The role of hospital UR committees is central to the entire mechanism of utilization review. They function to fulfill the requirements and objectives of the Medicare law and regulations. Through case reviews and special studies, they are responsible for evaluating the necessity of use of hospital facilities, assessing admission and discharge practices, and examining the services ordered and provided. 2/

Many individual hospitals similarly have a medical audit committee or perform a medical audit function to assess the necessity, adequacy, and quality of professional care and services rendered. Where medical audit exists, some accommodation to or coordination with the UR activity would seem essential; the roles of these committees may overlap and efforts may be duplicated unnecessarily unless their respective structures, functions, and scope of activities are carefully defined and perceptively interrelated. Since a hospital's comprehensive medical audit activity may encompass utilization review, the UR function may be included as part of the medical audit committee. 3/

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1/ Herman M. Somers and Anne R. Somers, Medicare and the Hospitals: Issues and Prospects (Washington, D.C.: The Brookings Institution, 1967), p. 268.

2/ American Medical Association Committee on Insurance Prepayment Plans, "Guidelines for Establishing Medical Society Review Committees," Journal of the American Medical Association, November 29, 1965, p. 1,021.

3/ See Vergil N. Slee, "Medical Audit Is Best Method of Meeting Utilization Review Need," The Modern Hospital, December 1965, pp. 70-81, 128.



There is a great deal of interhospital variation in the make-up and operation of UR committees. The major variables are type of committee sponsorship, size, composition, definition of extended duration adopted for long-stay case reviews, administrative procedures, methodologies employed, etc. Further discussion and statistics on these committee characteristics, as well as analyses of the relationships between certain of these factors, will be presented in detail in chapter 5.

A number of hospital UR committees subscribe to independent regional or area-wide data and consultative organizations. These data organizations furnish their subscribers with utilization and other necessary medical and administrative statistics, with support for in-house studies, and with comparative information to assist the hospital UR committees in evaluating their relative progress. Unfortunately, some of the hospitals which receive such data use them only superficially, if at all. <sup>4/</sup> This wastes not only the money and effort expended, but also the valuable time of physician reviewers. Recent increases in the consultative and analytical services offered by some of the UR regional data systems nevertheless have served to underscore their perceived (though largely unvalidated) usefulness and importance in committee analysis of hospital care patterns.

### State Agencies

Another level of organization concerned with hospital utilization review under Medicare involves individual State agencies operating under agreement with the Department of Health, Education, and Welfare and working in conjunction with the Public Health Service. These contracting agencies <sup>5/</sup> are authorized to conduct initial certification and recertification surveys of health care facilities. The purpose of such surveys is to establish the providers' initial and continuing eligibility to participate in the Medicare program. State agencies are responsible for ascertaining substantial compliance with the Medicare standards and for consulting with providers concerning any compliance problems.

The role of the State agency surveyors is confined to assessment of whether the provider's UR committee is functioning in accordance with statutory requirements and the institution's (approved) written plan. There is no direct certification of the effectiveness of committee functioning. The State agencies do, however, examine procedural weaknesses in the UR committees which may impede the effectiveness of their review operations.

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<sup>4/</sup> For instance, PAS data have been reported as "sorely underused" by Francis Greaney, Robert Morisse, and James Wilson in their survey of 35 Connecticut general hospitals: "A Study of Utilization Review Mechanisms Employed in Connecticut Hospitals" (New Haven: Yale University School of Medicine, May 30, 1967), p. 60. (Mimeographed.)

<sup>5/</sup> In most States the governors or legislatures designated their respective State health departments as the contracting agencies.

While basic Medicare program policies were being formulated and issues resolved, the designated State agencies first began to survey and approve hospitals for participation in the program. The majority of hospitals established their Medicare eligibility as of July 1, 1966, or shortly thereafter (currently over 6,800 institutions). Those hospitals (other than tuberculosis or psychiatric institutions) which were JCAH-accredited were deemed by law to be in substantial compliance with the conditions of participation if they met the UR requirement, whereas non-accredited hospitals had to meet staffing, medical records, physical plant, and other JCAH-type requirements in addition to that of utilization review.

For initial certification, hospitals submitted written plans describing their UR functioning to the surveying State agency. Since most hospitals lacked operative utilization review committees prior to July 1, 1966, "these plans were accepted as evidence of conformity with the statutory requirements." 6/ In the 1970's the State agencies are far along in the hospital recertification process. This includes appraisals of the actual operation of utilization review committees in comparison with the plans the hospitals submitted at the time of their initial certification.

### Fiscal Intermediaries

Contracting fiscal intermediaries (such as Blue Cross and certain commercial health insurance companies) share with State agencies significant administrative responsibility for the program. They act as the link between the participating providers (who nominate them) and the Social Security Administration. Their principal function is to review and pay hospital claims for the reasonable cost of providing covered care to Medicare beneficiaries. In so doing, the intermediaries assist in the application of safeguards against the unnecessary use of covered items and services.

SSA has also assigned intermediaries a role in assessing the effectiveness of hospital utilization review. Initial administrative guidelines suggested that they report to SSA periodically on the UR operations in the providers they serve. The intention was for the intermediaries routinely to collect and report for control purposes such information as: the number and frequency of UR committee meetings, the number and types of cases reviewed, case findings, committee recommendations, corrective actions taken, and follow-up results. 7/

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6/ Nancy C. Maki, Daniel Walden, and Lawrence Cohen, "Utilization Review: Issues and Outlook," paper presented at the 95th Annual Meeting of the American Public Health Association, Miami Beach, Florida, October 26, 1967 (Bethesda: U.S. Public Health Service, Division of Medical Care Administration, Standards and Methods Branch, 1967), pp. 2-3. (Mimeographed.)

7/ Thomas B. Fitzpatrick, "The Research Function within Prepayment Plans and Its Relation to Utilization Review," Inquiry, May 1966, p. 31.



Specifically, the Blue Cross Association has surveyed its member plans with a UR questionnaire designed to document the extent of their involvement in provider UR activities in their service areas, and thereby to provide the basis for an evaluation of their effectiveness. <sup>8/</sup> More recently, BCA (through its member plans) has also surveyed utilization review committees in a number of Medicare-certified hospitals. Currently, BCA is arranging to make several health data information systems available for use by its member plans.

### The Social Security Administration

Charged with the overall administration of the Medicare program, SSA has responsibility for its policy formulation, general management, and operational aspects. At the start of Medicare, it formulated the conditions for provider participation (including the utilization review requirement) in consultation with the Public Health Service. SSA directed and coordinated the implementation of the program in all aspects: contracting with State agencies and intermediaries; designing forms and systems for health insurance records, claims processing, and statistics; establishing principles of reimbursement; conducting public information and professional relations activities; promulgating procedures for claims filing and guidelines for claims processing, etc.

SSA's subsequent clarification of the intermediaries' role provided that they should help to identify and evaluate those factors which impair effective utilization review. <sup>9/</sup> They could then disseminate their findings not only to SSA, but also to State agencies and providers in their service area for comparison purposes and the interchange of useful information. Intermediaries could thus bring to State agencies' attention any situations in which a UR problem is either not being dealt with or is not readily correctable. Furthermore, with their computerization and statistical research know-how, intermediaries could also assist hospital UR committees in developing their data collection and analysis methodologies.

The prime contract between the Social Security Administration and the national Blue Cross Association (BCA) requires that "the intermediary shall assist providers of services in the development of procedures relating to utilization practices, make studies of the effectiveness of

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<sup>8/</sup> See Irving A. Taylor, Report of Blue Cross Plan Activity of Utilization Review and Related Responsibilities Under Medicare (Chicago: Blue Cross Association, 1969).

<sup>9/</sup> U.S., Department of Health, Education, and Welfare, Social Security Administration, Bureau of Health Insurance, Intermediary Letter No. 248 and State Agency Letter No. 73 (Baltimore: SSA, July 11, 1967).



such procedures and methods for their improvement, and assist in the application of safeguards against unnecessary utilization of services." Accordingly, BCA has taken an increasingly active interest in the UR and other cost control activities of its member plans.

Several different components within the Social Security Administration are involved in carrying out the large number of ongoing post-legislative Medicare functions. Those most directly related to the operational area of hospital UR are the Bureau of Health Insurance (BHI) and the Division of Health Insurance Studies. BHI takes the lead in policy-making, program coordination, and many other health insurance activities. The Division of Health Insurance Studies has primary responsibility for Medicare research and statistics.

BHI's field network of health insurance regional offices plays a special role in clarifying what effective UR is and how it works. These regional offices sponsor utilization review conferences and workshops with State agency and intermediary personnel. 10/ The health insurance regional offices, in consultation with the surveying State agencies and the institutions involved, are also responsible for approving applications for the certification of providers. Regional officers sign the provider agreements on behalf of the Commissioner, and thereafter they remain the focal point for SSA-provider interchanges.

#### The Public Health Service

The Secretary of Health, Education, and Welfare has delegated to the Public Health Service responsibility for the professional health aspects of the Medicare program. 11/ This includes professional consultation, and recommendations to SSA in the development of concepts and policies for utilization review. In consultation with the national professional organizations concerned, PHS also supports and administers certain research studies and demonstration projects. Included among these are noteworthy endeavors which are being funded to further UR methodology, consultative services, and the general level of competence in hospitals' performance of utilization review.

The two components of the Public Health Service which participate in UR activities are the Community Health Service (CHS) and the National Institute of Mental Health (NIMH). The Community Health Service takes the lead in contracting for UR studies. CHS regional offices (parallel to SSA's health insurance regional offices) foster the development of

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10/ For example, see "Getting the Best for the Money through Utilization Review," OASIS, (Baltimore: Social Security Administration, September 1968), pp. 12-13.

11/ J. W. Cashman, "Role of the State Agency," in Proceedings of the Seventh Annual Medical Services Conference: "Medical Staff in Action--Utilization Review," Philadelphia, Pa., November 27, 1965, Journal of the American Medical Association, June 13, 1966, pp. 998-999.

States' UR programs, sponsor meetings with State agency surveyors, and further the education of providers in regard to utilization review. The other PHS component concerned with UR is the National Institute of Mental Health, which plays the key role in developing and promoting principles, objectives, and models for utilization review in inpatient psychiatric institutions.

The basic philosophy, principles, and special considerations involved in psychiatric UR were the subject of a conference held in November 1967 by the American Psychiatric Association in conjunction with the two above-mentioned components of the Public Health Service. The conference participants concluded that, for the UR process in mental institutions to be most fruitful, it should emphasize "a study of the quality of the evaluation, the treatment plan derived from it, and the appropriate application of treatment resources," including the consideration of available alternative facilities. 12/

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12/ American Psychiatric Association, Psychiatric Utilization Review: Principles and Objectives (Washington, D.C.: American Psychiatric Association, June 1968), p. 9.

### Committee Structure

In accordance with UR regulations under Medicare, a participating hospital may organize its UR activities by expanding existing staff committee functions, by establishing one or more groups to carry out the different functions, by affiliating with the local medical society and some or all of the hospitals and extended care facilities in the area, or by another approved outside arrangement. The flexibility permitted by the regulations has resulted in the establishment and approval of many types of hospital UR committees. These include: one or more in-house committees exercising UR functions; an in-house committee serving two distinct parts of an institutional complex (for example, the psychiatric or tuberculosis hospital as well as its general medical-surgical component); a hospital committee serving both its own patients and those of a distinct-part extended care facility; an in-house committee for extended duration review and an external committee for sample studies or patterns-of-care review; an external committee serving the hospital (especially for small and rural institutions); and an areawide committee designed to serve more than one facility.

According to the UR plans submitted in 1966 for initial State agency certification, approximately 97 percent of the participating hospitals' committees are in-house; the remaining 3 percent are sponsored by local medical societies, staffs from two or more hospitals, or other community organizations fulfilling this function. 1/ A subsequent questionnaire survey on the status of utilization review, however, conducted from May 1968 to July 1969 by State agency personnel under the direction of the Bureau of Health Insurance, SSA, has produced newer figures based on an analysis of reports from 509 participating hospitals. 2/ These figures reveal that 92 percent of the respondents tabulated had in-house UR committees and, of the remainder, 6 percent had committees in which the medical society participates.

### Different Sizes of Committees

The initial hospital UR plans showed that 43 percent of all committees were to range in size from 3 to 5 members of the hospital staff, 3/ with 57 percent varying from 6 to 22 members (depending on the size of the

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1/ Maki, Walden, and Cohen, "Utilization Review: Issues and Outlook," loc. cit.

2/ It should be noted that this sample markedly overrepresents the southeastern, midwestern, and north central regions of the United States. Since it was not a probability sample, neither may it be representative of the types of hospitals participating in the Medicare program. The distribution of the sample by type of institutional control, however, seems to approximate the known population closely. Figures derived from this survey, then, should be considered as gross indicators only.

3/ Maki, Walden, and Cohen, op. cit., p. 3.



institution). Similarly, Blue Cross of Northeastern Pennsylvania reports that the range of physician members on the UR committees of hospitals in its service area is from 3 to 18, with 5 to 7 being found most frequently. 4/ The larger hospitals were once again found to have greater numbers serving on their committees. 5/ The SSA questionnaire survey disclosed a clear relationship between the number of UR committee members and the hospital bed size:

	<u>Hospital bed size</u>				
	<u>1-50</u>	<u>51-100</u>	<u>101-150</u>	<u>151-200</u>	<u>Over 200</u>
Average number of members on UR committee.....	5	6	8	9	12

#### Committee Composition

According to the regulations, two or more physicians must belong to the UR committee(s), which should be broadly representative of the medical staff. At the option of the hospital, other professional personnel may also belong. General practitioners (or internists) and surgeons appear to be the most frequently represented types of physician members. The composition of UR committees also often includes such non-physician members as hospital administrators, medical record librarians, nurses, and social workers. 6/ Blue Cross of Northeastern Pennsylvania, for example, reports that non-voting administrative membership on UR committees in its service area quite often includes such combinations as the administrator or his assistant, the medical records librarian, and the director of nursing. 7/ Indications from SSA's survey findings are that the number and types of medical specialties represented, as well as the variety of paramedical and administrative disciplines serving on UR committees, generally vary with hospital bed size. 8/

#### Committee Substructure

UR committees may delegate review responsibility to a subcommittee or to a single physician (either one of their members or a non-committee physician). The SSA questionnaire survey found that about two-thirds of all hospital committees have so delegated their review responsibilities.

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4/ "Medicare Report to the Hospitals and Extended Care Facilities of Northeastern Pennsylvania," p. 6, in Irving A. Taylor, Report, op. cit., section entitled "Guidelines for UR, Certification and Recertification."

5/ Ibid., p. 7.

6/ Maki, Walden, and Cohen, op. cit., p. 3.

7/ Taylor, Report, op. cit.

8/ Of all types of physicians, only general practitioners seem to have declining representation on hospital UR committees with increasing hospital bed size (in roughly inverse proportion to the internists).

Blue Cross of Northeastern Pennsylvania reported that a majority of the hospitals in its service area created subcommittee structures for the timely review of extended duration cases between regular (usually monthly) meetings of the full committees. 9/

### Other Variables

Other variables in UR committee structure have been investigated in a Connecticut study: the method of selection of the physician members; their length of service; the seniority status of hospital staff members serving on the committee; and, of the types of non-physicians represented on the committee, their proportion of the total membership and their consultative status. 10/ No statistically significant relationships were found, however, between (1) the method of selection of members and the committee's attitude towards the effectiveness of UR, (2) a predominance of chiefs of service on the committee and a greater depth of case review, (3) a larger proportion of non-physician representation on the committee and larger hospitals, (4) the structure of the UR committee and the intensity of its performance, and (5) the structure of the UR committee and its effectiveness.

An interesting relationship was found to exist between the presence of lines of communication (formal or informal), overlapping membership, and/or perceived complementary function among hospital staff committees and the attitudes of UR committee physicians concerning the effectiveness of the utilization review process.

The following table summarizes the number of Connecticut UR committees with and without some form of relationship to other committees and the general attitudes of the committee physicians. 11/

<u>Attitude of physician</u>	<u>UR committee relationship</u>		
	<u>Total</u>	<u>Formal or informal</u>	<u>None</u>
Total.....	35	18	17
UR can affect quality and efficiency of care.....	28	17	11
UR can affect neither.....	7	1	6

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9/ Taylor, Report, op. cit.

10/ See L. Todd Berman, Katherine T. Dvorshock, and David R. Smith, "Utilization Review in Connecticut Hospitals: Three Years After Medicare" (New Haven: Yale University School of Medicine, May 29, 1969), pp. 16-22. (Mimeographed.)

11/ Table derived from Table VII, ibid., p. 37, to reveal its inherent significance. A chi square test applied to the above table was statistically significant at better than the 99 percent level of confidence ( $\chi^2 = 6.73$  for 1 degree of freedom; in other words, the probability is less than 1 percent that this statistic would prove to be so significantly large due to chance factors alone.)

Of those UR committees having formal or informal relationships with other committees, then, all but one believed that the UR process could improve quality of care or the efficiency of hospital utilization; whereas six of those with negative attitudes toward UR had no such relationships. This conclusion cannot be interpreted as a demonstration of cause and effect, however, since overlapping memberships on hospital committees were necessitated by small staff size rather than by a desire to provide lines of communication between committees. 12/

### Responsibilities of the Hospital's Administrative Staff

According to Medicare regulations on utilization review, the UR committee should have administrative staff support and assistance in assembling information, conducting studies, facilitating chart reviews, exploring ways to improve procedures, maintaining committee records, and promoting the most efficient use of available health services and facilities. The latter should include assistance to the physician in discharge planning (such as furnishing him with current information on resources available for continued out-of-hospital patient care) and the provision of appropriate medical and nursing information to transfer facilities. A department or individual must be designated responsible for each of the above administrative activities.

### Committee Activity Patterns

#### Frequency of Full Committee Meetings

According to the SSA questionnaire survey, 75 percent of all hospital plans specified that the UR committees were to meet once a month. Twenty-two percent of the remaining UR committees planned to meet more frequently. Blue Cross of Northeastern Pennsylvania generally corroborates this, finding that most of the UR committees in its service area (with only a few exceptions) hold regular monthly meetings. 13/ An early 1967 survey of the 35 general hospitals in Connecticut reported that the UR committees of 17 hospitals were meeting monthly, 5 biweekly, 5 weekly, 6 as needed (but at least monthly), and one other not at all as of the date of the survey. 14/ The follow-up survey of Connecticut hospitals conducted in 1969 found the frequency of full UR committee meetings to be monthly in 27 hospitals, biweekly in 3, and weekly in the remaining 5, with additional ad hoc meetings being held whenever the institutions perceived a critical bed situation or similar problem. 15/

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12/ Ibid., p. 36.

13/ Taylor, Report, op. cit.

14/ Greaney, Morisse, and Wilson, op. cit., p. 3.

15/ Berman, Dvorshock, and Smith, op. cit., p. 31.



### Length of These Meetings

The Connecticut hospital resurvey findings have suggested two trends with respect to the length of full UR committee meetings:

- (1) "As the length of meeting time increases, the proportion of time spent on policy discussion (rather than case review) also increases;" 16/ and
- (2) As the amount of time spent on case review outside full UR committee meetings increases, the proportion of time needed for case review during the meetings decreases. 17/

### Frequency of Review by Subcommittees or Delegates

Early data from the 1969 SSA questionnaire survey indicated that, of the 434 hospital UR committees (out of 509) meeting monthly or less often, about 20 percent were not using a subcommittee or delegate. Further, among all 343 hospitals reported as having subcommittees or delegations with review responsibility, again about 25 percent were meeting less frequently than weekly. These tentative findings raise some question about the timeliness of extended duration reviews in these hospitals, which UR regulations specify should be performed within one calendar week of the last day of the extended stay period indicated in the hospital's approved UR committee plan.

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16/ Ibid.

17/ Ibid., p. 33.

More recent data from the Connecticut studies, however, reveal an increase in the frequency of initial case review among the State's general hospitals, as follows: 18/

<u>Frequency</u>	<u>Original survey</u>	<u>Resurvey</u>
Number of hospitals.....	35	35
Daily.....	9	12
More than daily, less than weekly.....	4	1
Weekly.....	5	14
Biweekly.....	5	0
Monthly.....	4	7
Other or as needed.....	8	1
Total percent.....	100.0	100.0
Daily.....	25.7	34.3
More than daily, less than weekly.....	11.4	2.9
Weekly.....	14.3	40.0
Biweekly.....	14.3	0.0
Monthly.....	11.4	20.0
Other or as needed.....	22.9	2.9

#### Time Spent on Outside Case Review

The Connecticut resurvey reported the total time per week spent on case review by reviewing physicians outside the UR committee meeting to be as follows: 19/

<u>Hours spent</u>	<u>Number of hospitals</u>
Total.....	35
0.....	6
Less than 1.....	4
1-3.....	11
4-6.....	6
7-10.....	5
More than 10.....	3

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18/ Ibid., p. 30.

19/ Ibid., p. 34.

### Timeliness of Actual Performance of the Extended Duration Review

The Connecticut 1969 UR resurvey also examined the timeliness of long-stay case review with respect to the Medicare requirement that this be performed within 7 days of the definition of extended duration adopted by the hospital. The time lags found were as follows: 20/

	<u>Number of Hospitals</u>
1 day or less	9
2 days to 1 week	18
8 days to 2 weeks	4
1 month	3
4 months	1
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Total	35

Nearly 23% of the hospitals surveyed were thus apparently not fulfilling this Medicare requirement. The last hospital above (4 months) was performing retrospective (post-discharge) review only.

### Minutes of Committee Meetings

Medicare UR regulations require that minutes of all committee meetings should be maintained. The records of committee activities should include summaries of the number and types of cases reviewed and the findings, as well as action taken in extended stay cases (which should be identified only by hospital case number). The SSA questionnaire survey has indicated that only 94 percent of the UR committees record minutes of their meetings, and some of these keep subcommittee minutes as well.

### Methodology in the Review Process

Committees certified under the Medicare program must perform two aspects of utilization review: (1) the concurrent (while patient is still hospitalized) examination of all extended duration cases and (2) special studies of patterns of care (which may be either concurrent or retrospective). The methodological considerations of UR committees include: devising case-screening mechanisms and data collection formats, tabulating and analyzing the data collected, making recommendations, and following up on their implementation.

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20/ Ibid., pp. 30-31.



What cases to select for review and how to select them are the first considerations of UR committees. Only small institutions can review all cases. Others select types of charts for committee review by including cases in specific diagnostic or surgical categories, emergency admissions, long-stay and short-stay patients, or cases that prepayment plans have questioned or rejected for payment. 21/ Still other UR committees employ one of several sophisticated screening mechanisms which are available as sampling aids. These may include regional data organizations, direct hospital tie-ins to a centralized time-sharing computer facility or a shared hospital information system, and a hospital's own automatic data processing equipment. Such screening systems are most frequently based on the principle of statistical deviation from empirical norms. 22/ Screening can also be accomplished by applying predetermined criteria to cases of a given diagnosis.

After the selection of cases for further study, other methodological considerations face UR committees. These include the establishment or revision of any criteria intended for use in the subsequent review and evaluation of selected cases; what procedures to follow in conducting the actual case reviews and in processing and analyzing the data obtained; the types of recommendations to emanate from committee case findings, when to submit them, in what format, and to whom; and when and how to assess resulting action.

#### Records Used for Review

UR committees employ a variety of internal records and methods to review extended duration and sample study cases. The primary source of information is the complete medical record, reportedly used by 93 percent of the hospitals responding in the SSA survey of utilization review.

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21/ Morris London, "Medical Staff Utilization Committees," Inquiry, September 1965, p. 78.

22/ An interesting variation of this is Max Shain's suggested "Epidemiological Approach to Hospital Utilization," Hospital Management, October 1960, pp. 50-51, 113-114. In developing this approach to the admission and length of stay (by age, sex, and diagnosis) components of hospital utilization, researchers tabulated data from nearly 1,000 cases and then cross-tabulated the categories with high frequencies of occurrence. The results indicated suspicious categories on which the UR committee could then focus its attention. The advantage of using this methodology is that it directs committee study first to those types of cases with the highest expected frequency of problem elements. In addition, this approach appears to be equally applicable to such other length-of-stay components of hospital utilization as diagnostic procedures (laboratory, X-ray) and therapeutic procedures (surgery, drug, radioisotope, X-ray, etc.), consultations, payment mechanism, and discharge planning.

Sixty-two percent of the hospitals indicated use of a UR checklist; 51 percent, an interview with the attending physician. These and other hospitals also reported the use of observations of the patient (28 percent), abstracts of the medical record (8 percent), face sheets atop the records (5 percent), etc. Thirty-two percent of the respondents, however, indicated that no special internal records (other than the basic medical record) were maintained for retrospective reviews.

#### Case Population Reviewed

Hospital UR committees may confine their reviews to Medicare cases only (in which case the cost reimbursement for committee activities is not an allowable hospital expense under Medicare), or they may review all types of cases. SSA survey found that, of 468 respondents to this question, 17 percent of UR committees reviewed Medicare cases only, 10 percent reviewed all Medicare cases plus a sample of other cases, and the remaining 73 percent reviewed all cases (including persons under age 65).

Massachusetts Blue Cross has gathered data on the percentage of Medicare cases among the total reviewed by UR committees in its service area. There was no discernible trend by hospital bed-size groups. Medicare patients as a percent of total patients and Medicare cases reviewed as a percent of total cases reviewed are summarized below: 23/

	<u>Total</u>	<u>July 1, 1966- Mar. 31, 1967</u>	<u>Apr. 1, 1967- Mar. 31, 1968</u>
Medicare patients as a percent of total patients.....	20.1	19.9	20.8
Medicare cases reviewed as a percent of total cases reviewed.....	36.9	36.6	43.6

The data indicate that, although Medicare patients comprise roughly one-fifth of the total patient population, they constitute approximately two-fifths of all cases reviewed.

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23/ Massachusetts Blue Cross, Inc., A Report on Hospital Utilization Review Activity, HCR/115 (Boston: Massachusetts Blue Cross, Inc., April 1969), pp. 2-10.

### Types of Cases Reviewed

The UR questionnaire survey of the Social Security Administration has reported the following bases for the selection of cases to be reviewed:

	Percent of Respondents (N = 509)
Length of Stay (extended duration).....	90
Routine Admissions.....	53
Discharges.....	51
Length of Stay (other than extended duration)..	43
Emergency Admissions.....	39
Selected Diagnoses.....	32

The above categories are not mutually exclusive. The tentativeness of these figures and their age (1968) are limitations that should also be borne in mind. It is obvious, however, that 10 percent of the respondents were failing to perform the required long-stay case reviews as of the date of this survey. The data also cast considerable doubt upon the extensiveness of review with respect to the medical necessity of admissions, durations of stay, professional services rendered, and drugs or biologicals furnished.

### Extended Duration Review

Medicare UR regulations permit that the period defined by the UR plan as representing an extended duration of stay may vary for different classes of cases, but every health insurance beneficiary case should be reviewed within one calendar week of the last day of the period of extended duration specified in the plan. Physicians on the utilization review committee may not review those long-stay cases for which they have significant professional responsibility. If questions arise as to the medical necessity of further inpatient stay, the UR committees should accord the greatest weight to the opinion of the attending physician. The institution, the attending physician, and the patient or his representative should receive written notification of an adverse committee decision within 48 hours. 24/

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24/ As of this writing, a bill has been introduced in the Congress whose applicable part requires UR committees to give notification to the hospital also in cases where they determine that admission to the institution or the furnishing of particular professional services was medically unnecessary.



According to the original UR plans submitted in 1966 for initial State agency certification of hospitals, the single definition of an "extended duration" stay ranged from 20 to 30 days in about 50 percent of all committees, while 14 percent of the remainder varied their definitions by diagnostic category. 25/ Blue Cross of Northeastern Pennsylvania has reported that the extended duration periods specified by the hospitals in its service area range from 12 to 30 days, with the greatest number clustering between the 19th and the 25th day of stay; "the central point seems to be 21 days." 26/

The SSA questionnaire survey in 1968, on the other hand, found essentially a trimodal distribution, with peaks at 14-15 days, 18-24 days, and 30 days for the single definitions of extended duration employed (see below). Forty-six UR committees, or 9 percent of the hospitals surveyed, used variable definitions of long stay by diagnosis; often they employed the recertification points required by AID (the Approval by Individual Diagnosis program in New Jersey). 27/

<u>Uniform Definition for</u> <u>All Cases, in Days</u> (N = 463)	<u>Percent of Such Hospitals'</u> <u>UR Committees</u> (Total = 100%)
Over 30	6
30	35
25 - 29	2
18 - 24	31
14 - 15	21
12 - 13	1
Less than 11	4

The most recent data available, that from the follow-up UR survey in Connecticut, 28/ found that 5 hospitals out of 35, or 14.3 percent, use predetermined lengths of stay by diagnostic category as their variable definitions of extended duration. These diagnosis-specific lengths of stay are usually based on the UR committees' modifications of PAS and HUP data. 29/ The remaining 30 hospitals, or 85.7 percent, employ one fixed day for all cases:

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25/ Maki, Walden, and Cohen, op. cit., p. 3.

26/ Taylor, Report, op. cit.

27/ See pp. 15ff.

28/ Berman, Dvorshock, and Smith, op. cit., p. 27.

29/ See pp. 19ff. and 21ff.

<u>Definition of extended duration</u>	<u>Number of hospitals</u>	<u>Percent of hospitals</u>
Total.....	30	100.0
10 days.....	2	6.7
14 days.....	14	46.7
19 days.....	1	3.3
21 days.....	9	30.0
30 days.....	4	13.3

About 20 percent of the hospitals reporting a 21-day fixed definition of extended duration in the first Connecticut survey apparently shifted to a 14-day definition in the interim preceding the resurvey.

#### Sample Studies of Patterns of Care

According to the UR regulations, case reviews should be designed to identify and analyze patterns of patient care by diagnostic categories, including those diagnoses of special relevance to the aged. Cases selected for review should include a sample of those recertified under Medicare provisions as to their continuing medical necessity for inpatient stay. Some of these review functions should be carried out on a continuing basis. Data for case review may be obtained from the following sources: external organizations which compile statistics, design profiles, and produce other comparative data; the local fiscal intermediary; and/or internal medical records of the hospital.

#### Data Screening to Select Cases

The Connecticut UR resurvey has disclosed that roughly one-fourth of the general hospitals in that State (9 out of 35) utilize information derived from either PAS/MAP or their own data processing systems to select cases for review. <sup>30/</sup> Massachusetts Blue Cross, Inc., <sup>31/</sup> has reported that UR committees in its service area found it easier to organize the selection of extended duration cases for review than to select cases for sample or other studies. The many committees in Massachusetts which began subscribing to Blue Cross Data Service, PAS, or other computerized record abstract systems, however, subsequently experienced increased progress in conducting such review.

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<sup>30/</sup> Berman, Dvorshock, and Smith, op. cit., pp. 41-42.

<sup>31/</sup> Massachusetts Blue Cross, Inc., op. cit., p. 28.

### Sampling Methodology

Selection of particular cases for special study and review most often depends upon the following: (1) the type of sample--random or categorical; and (2) if the latter, the specific categories to be reviewed. The categories with which UR committees have been most concerned are the type of hospital admission (i.e., routine, urgent, emergency), the length of inpatient stay, the payment status of the patient (Medicare or non-Medicare), and the patient's diagnosis (usually the confirmed or discharge diagnosis). 32/ Under UR regulations, committees may use any (or all) of these categories, alone or in combinations, as the basis for their sample selection. Further, they may sample cases according to any procedure or methodology deemed desirable, either manual or computerized.

According to Blue Cross of Northeastern Ohio, 33/ the sampling methodology specified in the hospital UR plans of its service area ranges from 2½ percent (or 25 cases) per month to a 100-percent review of all discharged patients in a previous month, with a 10-percent "random sample" being specified most frequently. One group of hospitals, it reports, samples by diagnostic categories involving overstay, based on internally developed statistical averages.

The Connecticut UR follow-up survey has similarly disclosed a wide variety of methods for the selection of sample review cases. The table reproduced below 34/ gives the bases of case selection in the 31 hospitals surveyed which performed a sample review. Of this number, 21 UR committees performed their reviews retrospectively (post-discharge), while the remaining 10 committees engaged in sample reviews on a concurrent basis (while the patient was still hospitalized). The total number of bases of selection shown in the table, 41, exceeds the number of hospitals employing sample reviews because 8 of them used a combination of sample selection methods.

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32/ Greaney, Morisse, and Wilson, op. cit., p. 43.

33/ Taylor, Report, op. cit.

34/ Berman, Dvorshock, and Smith, op. cit., p. 28.



<u>Basis for Case Selection</u>	<u>Number of Hospitals</u>	<u>Percent of Hospitals</u>
Total, All Bases	31	100.0
A. Percentage of Admissions	19	61.3
All Emergency Admissions	8	25.9
All Medicare Admissions	1	3.2
10% of All Medicare Admissions	1	3.2
5% of All Admissions	1	3.2
10% of All Admissions	4	12.9
20% of All Admissions	1	3.2
All Admissions on 1 Day/Month	2	6.5
All Admission of 1 M.D./Month	1	3.2
B. Percentage of Discharges	6	19.4
10% of All Discharges	1	3.2
20% of All Discharges	2	6.5
All Medicare Discharges	1	3.2
20% of All Medicare Discharges	1	3.2
All with Length of Stay Greater than Average for Diagnosis	1	3.2
C. Percentage of a Diagnostic Category or a Particular Service	6	19.4
20% of Diagnosis or Service	4	12.9
30% of Diagnosis or Service	1	3.2
70% of Diagnosis or Service	1	3.2
D. Selection by Nursing Division	3	9.7
E. Diagnosis of the Month	2	6.5
F. PAS Used	1	3.2
G. Physician Discretion	1	3.2
H. Other	3	9.7

Table 1.--Number of Massachusetts hospitals using various methods of case selection for sample studies, by hospital bed size, April 1, 1967-March 31, 1968

Method of sample selection	Hospital bed size				
	Total	Less than 100	100-199	200-299	300 or more
All hospitals.....	85	33	26	15	11
A. Random sample.....	27	17	5	3	2
1. Fixed percentage of admissions or discharges.....	22	15	3	3	1
2. Flat number per time period (per week or month).....	4	2	1	0	1
3. Other <u>1/</u> .....	1	0	1	0	0
B. Categorical sample.....	44	14	17	9	4
1. Diagnosis.....	12	5	3	2	2
2. Type of admission <u>2/</u> .....	11	4	5	1	1
3. Length of stay.....	6	2	4	0	0
4. All Medicare cases.....	5	1	1	3	0
5. Some combination of B 1-4 above <u>3/</u> .....	4	0	3	1	0
6. Hospital service.....	2	1	0	0	1
7. Other <u>4/</u> .....	4	1	1	2	0
C. Combination of random and categorical samples..	11	1	3	2	5
1. Fixed percentage of admissions or discharges--diagnosis.....	2	0	1	1	0
2. Fixed percentage of admissions or discharges--type of admission--procedure....	3	0	0	1	2

1/ All admissions for a 24-hour period each month and all admissions after 3 p.m. each day.

2/ For example, emergency, urgent, elective, etc.

3/ Length of stay combined with diagnosis, type of admission, and/or all Medicare cases.

4/ Includes spot check (1), one patient of each staff physician on a rotating basis (1), PAS-MAP (1), and a combination of PAS, length of stay, diagnosis, and hospital service (1).

Table 1.--Number of Massachusetts hospitals using various methods of case selection for sample studies, by hospital bed size, April 1, 1967-March 31, 1968--Continued

Method of sample selection	Total	Hospital bed size			
		Less than 100	100-199	200-299	300 or more
3. Fixed percentage of admissions or discharges--other categorical sample <u>5</u> /.....	4	0	2	0	2
4. Flat number per time period--other categorical sample <u>6</u> /.....	2	1	0	0	1
D. 100-percent review of all patients.....	3	1	1	1	0

5/ "Other" includes type of admission (1), length of stay (1), hospital service (1), review of house cases (1), and a combination of procedure and length of stay (1).

6/ Includes procedure (1) and all admission diagnoses (1).



Table 2.--Percent of Massachusetts hospitals using various methods of care selection for sample studies, by hospital bed size, April 1, 1967-March 31, 1968

Method of sample selection	Hospital bed size				
	Total	Less than 100	100-199	200-299	300 or more
All hospitals.....	100.0	38.8	30.6	17.6	12.9
A. Random sample.....	31.8	20.0	5.9	3.5	2.4
1. Fixed percentage of admissions or discharges.....	25.9	17.6	3.5	3.5	1.2
2. Flat number per time period (per week or month).....	4.7	2.4	1.2	0.0	1.2
3. Other <u>1/</u> .....	1.2	0.0	1.2	0.0	0.0
B. Categorical sample.....	51.8	16.5	20.0	10.6	4.7
1. Diagnosis.....	14.1	5.9	3.5	2.4	2.4
2. Type of admission <u>2/</u> .....	12.9	4.7	5.9	1.2	1.2
3. Length of stay.....	7.1	2.4	4.7	0.0	0.0
4. All Medicare cases.....	5.9	1.2	1.2	3.5	0.0
5. Some combination of B 1-4 above <u>3/</u> .....	4.7	0.0	3.5	1.2	0.0
6. Hospital service.....	2.4	1.2	0.0	0.0	1.2
7. Other <u>4/</u> .....	4.7	1.2	1.2	2.4	0.0
C. Combination of random and categorical samples..	13.0	1.2	3.5	2.4	5.9
1. Fixed percentage of admissions or discharges--diagnosis.....	2.4	---	1.2	1.2	0.0
2. Fixed percentage of admissions or discharges--type of admission--procedure.....	3.5	---	0.0	1.2	2.4

1/ All admissions for a 24-hour period each month and all admissions after 3 p.m. each day.

2/ For example, emergency, urgent, elective, etc.

3/ Length of stay combined with diagnosis, type of admission, and/or all Medicare cases.

4/ Includes spot check (1), one patient of each staff physician on a rotating basis (1), PAS-MAP (1), and a combination of PAS, length of stay, diagnosis, and hospital service (1).

Table 2.--Percent of Massachusetts hospitals using various methods of care selection for sample studies, by hospital bed size, April 1, 1967-March 31, 1968--Continued

Method of sample selection	Total	Hospital bed size			
		Less than 100	100-199	200-299	300 or more
3. Fixed percentage of admissions or discharges--other categorical sample <u>5</u> /.....	4.7	---	2.4	0.0	2.4
4. Flat number per time period--other categorical sample <u>6</u> /.....	2.4	1.2	0.0	0.0	1.2
D. 100-percent review of all patients.....	3.5	1.2	1.2	1.2	0.0

5/

"Other" includes type of admission (1), length of stay (1), hospital service (1), review of house cases (1), and a combination of procedure and length of stay (1).

6/

Includes procedure (1) and all admission diagnoses (1).

Massachusetts Blue Cross, Inc., has also gathered some data on the UR committee activities in the hospitals it serves as fiscal intermediary. 35/ This information (summarized in part in the accompanying tables) was collected for the time period from April 1, 1967, to March 31, 1968. The tables present frequency and percentage distributions of the various methods of selecting sample cases for committee review, by hospital bed-size groupings. 36/

Overall, slightly more than one-half (52 percent) of the hospitals surveyed in Massachusetts were found to be utilizing categorical approaches in their sample selections, while nearly a third of the remainder (32 percent) were employing random sampling techniques. The rest of the hospitals used some combination(s) of these two methods, except for 3.5 percent who were performing a 100-percent review of all patients.

Sixty-three percent of all random sampling occurred in small institutions of less than 100 beds, and nine-tenths of this consisted of selecting for review a fixed percentage of all admissions or all discharges. It can also be seen that the frequency of use of the random sample methods decreases with increasing bed size of the hospitals.

Categorical sampling methods, on the other hand, seem to be employed most frequently by hospitals whose size ranges from 100 to 199 beds. Of all approaches to categorical sampling, the most common bases for case selection were found to be diagnosis and type of admission. Only 8 percent of all hospitals surveyed in Massachusetts were confining their sample studies to the Medicare population alone.

According to Massachusetts Blue Cross, Inc., UR committees should use sample or other studies as an aid in planning future system changes. Such studies are most often used, however, to uncover overutilization. 37/ In addition, the studies usually do not focus on patient follow-ups after discharge, geographical service areas, or referrals into hospitals from home health agencies and nursing homes. 38/

#### Components of Care Reviewed

Early utilization review in Connecticut (1967) focused mainly on the necessity of admission (10 hospitals out of 35, or 29 percent) and length of stay (20 hospitals, or 57 percent). Three UR committees reviewed cases for substantiation of the admitting diagnosis. Only three hospitals, or

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35/ Massachusetts Blue Cross, Inc., op. cit.

36/ Ibid., pp. 13-26.

37/ Ibid., p. 27.

38/ Ibid., p. 28.



10 percent, reported that they were examining all components of care (including necessity of admission, length of pre-operative stays, delays in service, delays in receipt of consultations, and number of drugs and medications ordered). 39/

The Social Security Administration survey of hospital UR committees (1968) has found that they review the following components of patient care:

<u>Components of Patient Care Reviewed</u>	<u>Percent of Hospitals (N = 509)</u>
(1) Necessity of admission	86*
(2) Length of time between admission and diagnostic workup	80
(3) Length of pre-operative stay	75
(4) Need for further inpatient stay	90*
(5) Medical necessity of professional services	82*
(6) Overuse or underuse of diagnostic procedures	80
(7) Necessity for drugs and medications ordered	64*

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\* Required by statute

The survey disclosed that 55 percent of the respondents review all of the above components of patient care. Despite the statutory requirements for review of the asterisked items by every participating hospital, however, it is obvious that 14 percent are not reviewing the necessity of admission; 10 percent, the need for further inpatient stay; 18 percent, the medical necessity of professional services; and 36 percent, the necessity for drugs and medications ordered.

The UR follow-up survey in Connecticut found that 29 hospitals, or 83 percent, were performing reviews of various components of patient care to justify admission or length of stay. The other 6 institutions (17 percent) were reviewing cases primarily to scrutinize the actual utilization of services. 40/

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39/ Greaney, Morisse, and Wilson, op. cit., p. 45.

40/ Berman, Dvorshock, and Smith, op. cit., Appendix G.

<u>Component of Care Reviewed (Conn.)</u>	<u>Number of Hospitals</u>	<u>Percent of Hospitals (Out of 35)</u>
Necessity of admission	34	97.1
Diagnostic, therapeutic, and/or surgical procedures	25	71.5
Consultations	18	51.4
Discharge planning	12	34.3
Special studies	9	25.7
Short stays	8	22.9
Medical records (quality and completeness)	7	20.0
Drug reactions	1	2.9

#### Comparative Data to Evaluate Findings

The 1968 SSA survey disclosed that about 66 percent of the respondents (N = 489 for this question) were not comparing their UR findings with any other data, although 10 percent of these hospitals (N = 32) did have data from other sources available for comparison purposes. Of the remaining 168 respondents (34 percent) who indicated that they engaged in comparative studies, 118 hospital UR committees (70 percent) employed data from PAS-MAP, HUP, AID, or other data organizations; 76 institutions (45 percent) were using data from the hospital's own records or data processing system; and 39 (23 percent) utilized profiles or other comparative data received from the fiscal intermediary.

The 1969 Connecticut UR survey found that 16 hospitals, or 46 percent of those surveyed, were not utilizing comparative data from any source. Of these, 5 hospitals had collected data but then made no use of it. The remaining 19 hospitals (54 percent of the total surveyed) employed data to compare length of stay by diagnosis and service (both within and among hospitals), to monitor the utilization of specific facilities and services, and to evaluate individual physicians' patterns of patient care. 41/

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41/ Ibid., pp. 41-42.

## Results of UR Committee Activity

Forty-one percent of the respondents to the UR survey conducted by the Social Security Administration (210 hospitals out of 509) indicated that one or more patients were discharged during the previous three-month period as a result of utilization review committee case investigations. The average number of patients discharged by these institutions was 10.8.

Summarized findings from the Massachusetts Blue Cross UR survey for hospitals of all bed sizes combined are as follows: 42/

	<u>Total</u>	<u>July 1, 1966- Mar. 31, 1967</u>	<u>Apr. 1, 1967- Mar. 31, 1968</u>
Total cases in which action was taken as percent of total cases reviewed.....	<u>1/2.1</u>	3.3	1.9
Total cases in which Medicare benefits ceased as percent of total Medicare cases reviewed.....	1.2	2.3	1.3

1/ This overall ratio is lower than the separate figures for 1967 and 1968 due to a somewhat different sample of hospitals being included in each because of missing data.

The above data suggest that definitive action has been taken on 40-50 percent more cases reviewed, considering all types, than on Medicare cases alone. The trend over time for both of these populations is a decrease; figures for the period April 1, 1967-March 31, 1968 appear to be nearly 60 percent lower than the corresponding indicators for the previous period (July 1, 1966-March 31, 1967).

Medicare UR regulations require that the UR committee should make reports and recommendations regularly to the executive committee of the medical staff, the entire medical staff, and the governing body of the hospital. The hospital administration should study the committee's administrative recommendations and act upon them accordingly. According to the Social Security Administration's UR survey, 73 percent of the hospitals responding (372 out of 509) send their review findings or recommendations from sample studies to more than one place (for example, the executive committee, chiefs of service, etc.). Of those UR committees sending recommendations, the destinations reported were as follows:

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42/ Massachusetts Blue Cross, Inc., op. cit., pp. 2-10.



<u>Destination</u>	<u>Percent of hospitals</u>
Hospital administration.....	74
Executive committee.....	55
General staff.....	49
Hospital governing body.....	18
Chiefs of service.....	15
Fiscal intermediary.....	7
Other.....	15

Massachusetts Blue Cross, Inc., has also reported on the disposition of sample study cases in the hospitals it serves as fiscal intermediary. Table 3 shows the case dispositions, by hospital bed-size groups, for the time period from April 1, 1967, to March 31, 1968. <sup>43/</sup> A large percentage of referred cases (57 percent) was found only in hospitals of the 200-299 bed-size grouping. Of the referrals in this particular hospital group, 97 percent were directed to the hospital administration.

The Social Security Administration's UR survey found that the substantive recommendations which hospitals had reported receiving from their utilization review committees (i.e., those exclusive of individual case dispositions) were of the following types:

<u>Recommendation</u>	<u>Percent</u>
Total.....	<u>100.0</u>
Changing administrative policy.....	38.8
Changing, improving, or interpreting medical records or other records pertaining to UR or Medicare.....	29.0
Changing, improving, or expanding medical practices (including changes in the UR committee).....	21.0
Arranging for expansion of the existing levels of care available (for example, setting aside beds for extended-care facilities).....	9.7
Other.....	1.6

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<sup>43/</sup> Ibid., pp. 13-26.

Table 3.--Disposition of sample or other study cases in hospitals served by Massachusetts Blue Cross, by hospital bed size, April 1, 1967-March 31, 1968

Disposition	Total	Hospital bed size			
		Less than 100	100-199	200-299	300 or more
Number of cases					
Total.....	39,576	6,132	12,672	18,577	2,195
No action taken.....	28,330	6,012	12,209	7,992	2,117
Referral.....	11,246	120	463	10,585	78
Administration.....	10,373	32	41	10,287	13
Medical staff.....	482	21	174	245	42
Attending physician.	383	59	248	53	23
Other.....	8	8	0	0	0
Percent of total					
Total.....	100.0	15.5	32.0	46.9	5.5
No action taken.....	71.6	15.2	30.8	20.2	5.3
Referral.....	28.4	(1/)	(1/)	26.7	(1/)
Administration.....	26.2	(1/)	(1/)	26.0	(1/)
Medical staff.....	1.2	(1/)	(1/)	(1/)	(1/)
Attending physician.	1.0	(1/)	(1/)	(1/)	(1/)
Other.....	0.0	(1/)	0.0	0.0	(1/)

1/ Less than 0.05.

## Chapter 6. DIFFERENT APPROACHES TO DEVELOPING UTILIZATION REVIEW PROGRAMS AND PROCEDURES

With the advent of Medicare new approaches to UR included developments such as area-wide UR programs and the testing and evaluating of new or refined procedures for the conduct of UR. This chapter presents three different approaches to developing UR programs and procedures: 1) the area-wide Utilization Review Committee Program for the Academy of Medicine of Columbus and Franklin Counties in Ohio; 2) the New York State Medical Society contract to develop a manual for the medical review of inpatient hospital care; and 3) the University of Michigan contract with the Public Health Service to develop a methodology for evaluating UR procedures.

### Utilization Review Committee Program for the Academy of Medicine of Columbus and Franklin County 1/

The Academy of Medicine established its Utilization Review Committee on July 12, 1966, as a source of medical society guidance concerning UR programs and Medicare requirements. Its functions include: interpreting Medicare regulations; providing information to society members about prevailing attitudes and hospital experiences relating to UR; establishing uniform standards for the review of patient admissions and medical procedures in Columbus and Franklin County hospitals, nursing homes, and extended care facilities; mediating controversies among insurers, society members, and health care institutions regarding questionable or disputed fees and services; and hearing appeals of cases involving a society member and an institution after resolution has not been reached at the institutional level.

Members of the UR Committee are appointed by the president of the Academy of Medicine from among the chairmen of the individual hospital utilization committees who meet Academy qualifications. The members then concern themselves with the utilization programs in those hospitals where Academy members practice medicine. They may suggest proposals to improve existing community utilization practices or act in a consultative capacity with respect to utilization problems of an individual hospital, physician, medical care recipient, or third-party carrier. Members of the committee receive compensation for the services they render in the resolution of UR problems.

In addition, within 30 days from receipt of a written request to review any question, the Utilization Review Committee meets (at the discretion of its chairman) to hear complaints and take necessary action. Ten

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1/ See James L. Henry's description of this program in a letter with enclosures to Howard Franz of Blue Cross of Central Ohio as cited in Irving A. Taylor, op. cit., chapter entitled "Utilization Review Committees."



days prior to this hearing, the Committee chairman notifies all parties involved of its time and place and also of the particulars of the charge. Testimony is taken and fact-finding methods are employed during the hearing to insure equitable disposition of the case. Within 10 days following the hearing, the chairman makes available to the parties concerned the Committee's resolution of the problem.

The Committee has established policies and standards for the activities of other UR committees in the individual hospitals of Columbus and Franklin Counties that fall within its sphere of influence. According to the Academy Committee, UR committees should attempt to:

- (1) achieve the most effective utilization of community health facilities and services;
- (2) assist physicians in maintaining the highest quality of patient care;
- (3) assure hospital staff and administration that the medical staff is continually reviewing its performance and applying increasingly excellent standards of practice; and
- (4) provide a continuing program of staff medical education and information.

Individual hospital UR committees, the Committee said, are to deal with indications for admission; the period required for adequate patient management; indicated diagnostic and therapeutic procedures; and promptness of discharge. The Committee has also advocated the application of UR standards to all patients, not merely those insured under Medicare.

UR studies conducted in Columbus and Franklin County hospitals are necessarily of two types: (1) concurrent (while the patient is still hospitalized) and (2) retrospective (post-discharged). In concurrent review, length of stay is examined by diagnostic category, with deviations of 50 percent on either side of the median considered allowable. In retrospective review, a medical audit procedure is carried out by establishment of criteria for median stay and standards for diagnostic facility; for the utilization, promptness, and adequacy of therapy or surgery; and for adequate laboratory reporting (including tissue committee review). The hospital staff itself can then evaluate cases using these predetermined standards and criteria.

Other Academy policies on the organization and procedure of individual hospital UR committees state that UR committees are to be composed of actively practicing physicians and surgeons chosen from all clinical departments of the hospital medical staff; that pathologists and radiologists may be appointed as consultants to the committee; that the administrative office of the hospital may be represented ex officio;

that the hospital administration is also to provide the committee with a secretary to keep its minutes and records; and that the terms of appointment of committee members are to be staggered in rotation throughout the hospital medical staff. It is the policy of the Academy that physicians rendering utilization study services in those hospitals where they practice should do so without recompense, and compensation should be elective on the part of physicians engaging in consultative study of utilization matters in hospitals where they do not practice.

The Academy further provides that hospital UR committees meet at least monthly for determination on questionable cases. Through personal communication and then a formal committee letter, each attending physician is requested to furnish clarifying information whenever the committee finds no apparent need for continued acute care hospitalization. The committee's final decision must also be sent in writing to the physician concerned. Repeated offenses or lack of cooperation from a physician are to be referred to the governing board of hospital house staff physicians for disposition.

#### The New York State Medical Society Contract

The purpose of this two-year Public Health Service contract with the Medical Society of the State of New York, begun in the spring of 1968, was to develop a manual for the medical review of inpatient hospital care based on specific criteria.

The manual was intended to: (1) outline the objectives of performing quality-of-care reviews of patient records; (2) present recommendations for the organization and functioning of the hospital committee(s) concerned and outline the responsibilities of reviewing physicians and paramedical personnel; and (3) specify patterns of review to be applied in studying six selected diagnostic conditions. 2/ The patterns, structured according to a category-item method, included specific criteria and sample worksheets for evaluating each of the designated diseases or conditions.

The Society's Committee on Medical Review appointed clinical subcommittees, each composed of specialists in one of the conditions to be studied, to develop patient care criteria for inclusion in the manual. The criteria identified those items considered necessary for diagnosis and therapy, both to provide essential medical care and optimal management of the patient's condition. The worksheets used to extract data from each medical record were designed in two parts: the paramedical section, to be completed by a non-physician, to indicate the presence

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2/ Acute myocardial infarction, appendectomy (excluding incidental appendectomy), benign and malignant disease of the prostate requiring prostatectomy, diabetes mellitus, hysterectomy or myomectomy for fibromyomata uteri, and recent cerebral infarction or hemorrhage (commonly called cerebrovascular accident or CVA).



or absence of certain items; and the physician's portion, to be completed by a reviewing physician, to document his value judgment of the case in accordance with the criteria.

A medical review of actual cases was also carried out to test the applicability of the criteria. Six hospitals--two large, two medium and two small--were selected for this initial study from a sample stratified by geographic distribution, bed size, and size of community. A registered nurse with experience in medical records (assisted by another part-time nurse) visited each of these hospitals to obtain or prepare discharge listings by diagnostic categories for case selection purposes. Beginning with case listings for October 1967 and going back until the necessary number was reached, the nurse selected 25 cases of each condition in each hospital for review. She classified every medical record in the sample by the specialty of the attending physician, copied it, and subsequently abstracted certain items from each record onto the first part of a worksheet.

Three specialists in each diagnostic category pretested the patterns of case review for a sample of six cases in each disease or condition in the study. The clinical subcommittees then nominated six physicians, each to survey the entire pattern of review for one diagnostic category in the study. The project's physician-director reviewed all their case material before it was coded for machine processing and analysis.

By June 1969, the medical review manual was virtually complete. Modifications had largely already been incorporated within the appropriate review patterns. Improvements in the instructions for completion of the paramedical section of the case review worksheets or the wording of questions on it helped insure the applicability of medical record data to the patterns and attempted to preclude variations in interpretation of the pattern questions. By then, the six surveyors had also discussed with the project director the strengths and weaknesses of the pattern as an instrumental tool in assessing the study records. Final contract reports to the Public Health Service are expected to describe the methodology; to present the findings in each hospital, each diagnostic category, and in the pretesting of the physician surveyors; and to recommend both improvements in the diagnostic criteria developed and other approaches to increasing the utility of the manual in the review of inpatient care.

#### The University of Michigan Contract

Under a Public Health Service contract begun in 1967, researchers at the University of Michigan School of Medicine have developed and applied a methodology for evaluating the feasibility of using three different UR procedures in three community hospitals near Ann Arbor, Michigan. These procedures were: (1) reviewing the medical record alone, without



explicit diagnosis-specific criteria for decision-making; (2) reviewing the medical record using pre-established peer-group criteria by diagnostic category, as contained in the Hospital Utilization Review Manual; 3/ and (3) reviewing an abstract of the medical record along with the chart itself, using the peer-group criteria. The five-man medical staff review committee (distributed by physician specialty) in each designated study hospital employed the three different review techniques in the above order, each committee beginning with a different procedure. The study's factorial design thus permitted measurements and comparisons not only of the efficiency and effectiveness of each of the procedures, but also of the learning effects resulting from the order in which the three different review techniques were introduced.

The participating hospital UR committees have reviewed medical records from a common source (St. Joseph Mercy Hospital) to ascertain the appropriateness of admissions, lengths of stay, and services rendered. Two hundred complete medical records from 1966 were used, representing 50 cases from each of four diagnoses. 4/ These cases initially were randomly chosen, being selected only on the basis that the diagnosis shown on the face sheet of the medical record was in fact the primary one and not a secondary diagnosis. All necessary abstracts or worksheets were completed by record room personnel. Each hospital study group evaluated a number of medical records chosen from three of the diagnostic categories at each of three sessions, using a different group of cases and a different technique each time for the review of patient care and hospital utilization.

The researchers collected study information in several ways. They made objective measurements of both the time required for review (by direct observation) and the adequacy of committee judgments concerning the medical care evidenced in the record. To accomplish the latter, they compared the committee evaluations of the quality of patient care with independent evaluations made by two members of the research team, by the study staff's physician research associate and the project director, in conformance with the predetermined criteria found in the Hospital Utilization Review Manual. Researchers also gathered subjective measurements of the physicians' feelings about the efficiency, effectiveness, accuracy, and acceptability of the review techniques. They did this by recorded observation of the doctors as they worked, by group interviews, and by questionnaires that were completed individually. The measuring instruments that were developed to test the participants' knowledge and

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3/ Beverly C. Payne, ed., Hospital Utilization Review Manual (Ann Arbor: The University of Michigan Medical School, Department of Postgraduate Medicine, February 1968). This manual was originally developed under the auspices of the Michigan Medical Society.

4/ Cholecystitis and cholelithiasis; urinary tract infection; fibromyomata of the uterus; and hypertensive, arteriosclerotic, and rheumatic heart disease.

attitudes were employed a week before their first experimental session, at the end of each weekly session, at the end of all three experimental sessions, and once again from four to eight months after the experimental sessions.

This University of Michigan project is no longer receiving Public Health Service funds, and the final contract report is anticipated soon. The researchers' observations and other measures of the review committees both before and after the introduction of the three UR procedures are expected to identify and document the committees' structure, milieu, manner of procedure, attitudes toward the importance of the committee functions, and the perceived effectiveness and efficiency of the proceedings. 5/ The report will also include assessment of the three review techniques under study, the attitudes of the physicians serving on the UR committees, and changes in their attitudes toward utilization review. Preliminary indications are: (1) that there was little agreement among either committee physicians or the research team regarding their judgments of the adequacy of care as reflected in the medical records, and (2) that the use of a record abstract seemed to raise more questions than it answered.

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5/ No analyses are anticipated concerning the interactions of committee members.

## Chapter 7. UTILIZATION REVIEW STATISTICAL SUPPORT ACTIVITIES: COMPARATIVE OR SUMMARY DATA SERVICES

Since the passage of Medicare, a number of projects have been undertaken and extra-institutional data compilation services organized to assist participating providers in meeting the reporting requirements of the Medicare law. These projects and services have been designed to furnish to hospitals either 1) informational data of a comparative or summary nature, or 2) methods for the screening and selection of cases to be reviewed by hospital UR committees--or a combination of both.

This chapter surveys those UR statistical support activities that primarily provide comparative or summary data: (1) Medicare Analysis of Days of Care (MADOC), the multiple regression model of the Social Security Administration; (2) the profiles produced by the Associated Hospital Service (AHS) of New York; (3) the Massachusetts Blue Cross Data Service (BCDS); and (4) the Medical College of Georgia's UR contract with the Public Health Service.

### Medicare Analysis of Days of Care

MADOC is a multiple regression model which the Social Security Administration's Office of Research and Statistics has developed for assessing the length-of-stay aspect of hospital utilization. The objective of this effort is to accumulate and display statistical information in a manner useful for pursuing the educational intent of utilization review. By providing for each short-stay hospital participating in the Medicare program a comparison of its actual to its estimated length of stay, MADOC facilitates identifying situations that appear to be out of line in particular hospitals and the initiation of appropriate corrective action. The multiple regression approach is a practical way to analyze the average length of hospital stay, taking account of numerous factors that may affect it.

SSA maintains administrative records for the Medicare program that include the characteristics of certified hospitals and of enrollees, and it also routinely collects billing and other data for purposes of health insurance program statistics. MADOC's multiple regression analysis is based on information contained in the provider and beneficiary files and on the post-discharge data derived from Medicare inpatient hospital bills for a 20-percent sample of hospitalized beneficiaries. 1/ All sample bills have been grouped according to the geographic location of the hospital into 275 distinct "hospital service areas," which were defined

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1/ Social Security Administration, Office of Research and Statistics, Medicare: The MADOC Report, MADOC-1 Preliminary Report (Baltimore: Social Security Administration, 1970), p. 1.



as either metropolitan areas, parts of a county, single counties, or a number of contiguous counties. These geographic groupings were Hill-Burton program areas modified somewhat to contain from 5 to 50 hospitals, at least 1,000 beds, and to conform to the areas serviced by the Medicare program's fiscal intermediaries.

MADOC was designed to furnish a comparison of the actual average length of stay for all Medicare sample patients discharged from each hospital in a 6-month period with a regressed average based on all hospitals in its geographic area for the preceding 12-month period. This estimated figure, an expected or theoretical average (after adjustment for the independent variables detailed below), specifically takes into account a number of the major factors upon which hospital length of stay is known to depend. 2/ Individual hospital reports based on the MADOC model will include indications of the statistical significance of discrepancies between the actual and estimated average length of stay. They will also contain percentage distributions of the actual days of stay for all sample cases and the average actual lengths of stay for selected diagnoses with and without surgery.

The independent variables contained in the multiple regression model are categorizable according to whether they are hospital-related, patient-related, illness-related, or treatment-related. 3/ The hospital characteristics are: bed size, type of hospital, type of control, medical school affiliation, size of active staff, and number of services provided. The patient variables included are age, sex, and color. Illnesses are characterized by: the primary discharge diagnosis (or the first one of several reported on the hospital bill), whether or not additional diagnoses were reported; selected clusters of all other diagnostic categories having similar average lengths of stay, and whether or not the stay ended by death. The treatment-related characteristics of the model include: whether surgery was performed, the types of ancillary services rendered, and the dollar charges for certain ancillary services.

To account for further factors affecting length of stay, the multiple regression model also incorporates certain additional, composite variables that represent interactions among some of the above basic factors. These composite variables include: selected combinations of multiple diagnoses reported; the combination of surgery with the primary diagnosis; and surgery with multiple diagnoses. It should be noted here that physician characteristics and the economic, social, and demographic characteristics of patients and geographic regions are not available from SSA bill records for inclusion in the model as additional sources of variability. Also excluded from the model variables are the day of the week of admission and

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2/ For a technical discussion of the theory and methods of applying multiple regression analysis, see Harvey Wolfe, "A Computerized Screening Device for Selecting Cases for Utilization Review," Medical Care, January-February 1967, pp. 44-51.

3/ Social Security Administration, Office of Research and Statistics, MADOC-1 Preliminary Report, op. cit., p. 2.

the length of preoperative stay, since their effects on length of stay are presumably subject to the discretion of the hospital administration. The omission of these administratively controllable factors from the regression equation avoids allowing for them as a legitimate source of length-of-stay variance.

To develop the general multiple regression model for the subsequent estimation of a given hospital's average length of stay, a trial mathematical model was first constructed. Programmed into this regression equation were the independent variables described above that were expected to have some effect upon length of stay (the dependent variable). Appropriate weights were derived for each of the independent variables in the model by examining a sample of actual Blue Cross and Medicare claims data from the Indiana Blue Cross Plan. <sup>4/</sup> Using the model, SSA then performed a simulated utilization review analysis on another sample of Indiana data. The trial results were evaluated to validate the method as useful for length-of-stay analysis (by establishing the relationship between the test results and the impressions of knowledgeable Indiana Blue Cross staff). The model is being refined further and readied for its application to individual hospitals' claims data on a national, semiannual basis. <sup>5/</sup>

The multiple regression approach to case evaluation has several advantages. It allows for handling numerous variables simultaneously, for taking into account interrelationships which may exist between these variables, and for measuring quantitatively the effect of the proportionate contribution of each factor to length of stay. In these respects it overcomes to a large degree the limitations of classical hospital profiles, which are usually constructed to compare the average length of stay for a given diagnosis in a group of hospitals with closely matched institutional and patient population characteristics. Such profiles or similar multiple classification analyses are unable to display at the same time, in a way easy to comprehend, the influence of many variables, nor can they measure the effect of each on average length of stay.

Another advantage of using a multiple regression model is the greater precision and sophistication it affords compared with the analogous approach of traditional statistical quality control. Not only does the regression technique account for more variability, but in addition it amplifies the deviations of the out-of-control points to identify them more readily. Such indications of out-of-line hospitals will not, of course, directly control utilization within a given institution or maximize the operational effectiveness of its UR program. Output from the model can, however, serve to identify institutions that deviate significantly from the average or that have changed over time compared with their prior performance. The existence of any apparent significant differences

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<sup>4/</sup> Ibid.

<sup>5/</sup> Editor's Note: Data from the first six months, covering the period from July to December 1969, were released in late 1970. See Social Security Administration, Office of Research and Statistics, MADOC-2 Preliminary Report (Baltimore: Social Security Administration, 1970).



between the estimated and the actual length of stay distributions for a given hospital is merely a signal indicating the need for close review and analysis of institutional practices and procedures. Only the latter can accurately reveal either valid reasons for these differences or necessary corrective action to be initiated.

### Associated Hospital Service

As the intermediary for a number of participating hospitals under Medicare, the Associated Hospital Service (Blue Cross of Greater New York) established its own utilization review program. In doing so, it made no attempt to suggest definitions of continuous extended duration of stays nor to define sample adequacy for the review of certifications and recertifications in hospitals which it served. Its program, rather, was primarily a data-gathering effort designed to assist hospitals in their consideration of patterns of care and in special case review activities.

A committee of AHS staff members adopted the following objectives in planning for the implementation of Medicare UR requirements:

- (1) To assist hospitals in meeting their community obligation of insuring optimum utilization of personnel and facilities;
- (2) To insure that the additional duties placed upon the hospital's medical staff and other personnel are not unduly burdensome;
- (3) To permit and encourage the widest possible testing of varied methods of utilization review; and
- (4) To permit ready evaluation of the utilization committee's compliance with the program filed by the hospital's governing bodies with regulatory agencies. 6/

To implement these objectives, the committee then developed a three-part program and guidelines for its own operation. Its principal components are: (1) utilization data furnished to hospitals, (2) specific case review, and (3) evaluation of compliance. The utilization data which AHS furnishes to hospitals compare a hospital to its peer group (rather than emphasizing individual averages only); focus on easily identifiable single diseases; concentrate on the conditions and procedures that are most common; and provide sufficient cases (including both Medicare and non-Medicare cases) to reflect patterns of care. 7/

The specific case review activities of the Associated Hospital Service involve the following: the selection of a large sample of post-payment

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6/ Associated Hospital Service of New York, "An Approach to a Hospital Utilization Program," attachment to Medicare: Advance Information Letter No. 12 sent from Mark A. Freedman to administrators of all member hospitals in New York State, March 24, 1966.

7/ Ibid., Table 1.



Medicare cases and pre-payment and post-payment AHS cases for review by Blue Cross physicians; and subsequent referral to hospitals of those cases which appear to show either unnecessary admission, delay in diagnostic work-up, delayed surgery, overstay, understay, overuse of ancillary services, or inadequate discharge planning. 8/

To evaluate UR program compliance, AHS maintains a register of cases referred to hospitals and the analysis made thereof. It ascertains whether general utilization data were considered and whether aberrations were explained and dealt with, as well as whether the specific referred cases were reviewed, the results reported, and appropriate follow-up action was taken by the hospital administration. AHS also examines the number of hospital UR committee meetings held, the time spent, the attendance, and the minutes kept; the adequacy of samples of certification and recertification cases reviewed; and whether all extended stay cases were reviewed. 9/

The AHS staff committee then examined possible material to be used for subsequent analysis. From the most common procedures and diagnoses among AHS subscribers, they selected a number for study and analysis in depth. 10/ Beginning in September 1966, AHS has furnished to each hospital a comparative display of its experience for a particular diagnosis or procedure for the previous calendar year. 11/

The data produced in the pilot study conducted for cholecystectomy (surgical excision of the gallbladder), for example, is illustrative of the general type prepared for distribution to the hospitals. AHS compiled the following tables by direct computer printout: (1) a listing of sample cases arrayed by age, sex, total length of stay, preoperative and postoperative durations of stay and the day of the week on which admission, surgery, and discharge occurred; (2) a distribution of sample cases by the number of days of stay and by the length of preoperative stay for the individual hospital, its peer group hospitals, and all member hospitals; (3) a comparison of key data for each hospital in each group, showing the mean and median age of patients, the mean and median lengths of stay (total, preoperative, and postoperative), and the mean weekday of admission, surgery, and discharge; and (4) a comparison of the effect of the weekday of admission to the hospital on the percentage of patients operated upon within two days of admission, shown for the individual hospital, its peer group, and all member hospitals. 12/

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8/ Ibid., Table 2.

9/ Ibid., Table 3.

10/ Ibid., Tables 7-10.

11/ See Associated Hospital Service's Medicare Utilization Bulletin series.

12/ Associated Hospital Service, "An Approach to a Hospital Utilization Program," Tables 11-15; and Greater New York's Blue Cross Associated Hospital Service, Medicare Bulletin, "Utilization Bulletin No. 3," September 27, 1966, p. 1.

The New York Blue Cross UR program, then, uses only data routinely available from computer tapes to meet the requirements of existing law and regulations. It requires no mass data handling by hospitals and can easily be expanded (subject to constraint only by the amount of information contained in the bills). It permits hospitals to review in depth a relatively small number of cases of a specific type, to review all long-stay cases, to review a sample of certifications and recertifications, and to consider all kinds of individual patient questions. 13/ The AHS program does not, however, furnish hospitals with a complete listing of all their cases; and its value may also be limited for very small hospitals. 14/

#### Massachusetts Blue Cross Data Service

As part of its effort to support utilization review committees and hospital administration, Massachusetts Blue Cross, Inc., has developed a computerized information system for all inpatient cases in each participating hospital. 15/ Known as the Blue Cross Data Service, this system began recording and reporting data for 15 to 20 hospitals on a pilot basis in early 1968. 16/ By April 1969, over 30 Massachusetts hospitals were receiving monthly data compiled by BCDS and many were using this information to select meaningful cases for UR committee examination in sample or other studies. 17/

The goals of BCDS all relate to assisting participating hospitals. The system aims to furnish UR committee physicians with a useful tool for conserving their valuable time. It provides basic medical record statistics and consultative services to the hospital for increasing the timeliness and accuracy of their data, evaluating BCDS reports, and using them for various purposes. Helpful to the hospital administration is the highlighting of facts that may reveal problems in such areas as: operating room scheduling in relation to the admitting date; laboratory or X-ray scheduling; and the existing patterns of facility use by various specialty groups. 18/

BCDS data processing begins in the medical records department of each hospital participating in the program. There the medical record librarian and her staff are responsible for abstracting the pertinent facts from the medical record of each inpatient admission. 19/ The

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13/ Associated Hospital Service, "An Approach to a Hospital Utilization Program," op. cit., p. 4.

14/ Ibid., p. 3.

15/ Roland A. McNitt, "Memorandum of Understanding: Blue Cross Data Service," letter with enclosure to hospital administrators from Massachusetts Blue Cross, Inc., 1968. (Mimeographed.)

16/ Massachusetts Blue Cross, Inc., "Blue Cross Data Service to Aid Physicians and Hospitals," News and Trends in Health Care, January 1968.

17/ Massachusetts Blue Cross, Inc., A Report on Hospital Utilization Review Activity, HCR/115, op. cit., pp. 30-31.

18/ Massachusetts Blue Cross, Inc., "Blue Cross Data Service to Aid Physicians and Hospitals," loc. cit.

19/ Ibid.



abstract forms, which are supplied by Blue Cross, 20/ require such information as the age and sex of the patient, admission status, the diagnosis, whether surgery was performed, whether consultations were requested and received, the length of stay, discharge status, identification of the attending physician and/or surgeon, etc. Completed abstracts are then forwarded to BCDS monthly for coding, keypunching, and entry into the computer. 21/ The computer is programmed to convert each abstract into a single line item of information that appears in listings and indexes and also to perform certain summary tabulations across all patient abstracts. 22/

BCDS produces the following compilations of abstracted data for its participating hospitals: monthly case listing by diagnosis and by operation, a death listing, and a discharge analysis; quarterly, a physician index; semiannually, indexes of physicians, diagnoses, and operations; and with variable frequency, comparative analyses 23/ initially limited to 10 or 12 of the most frequent admission diagnoses. The summary tabulations include displays of total days of stay, pre-operative stays, age and sex distributions, distributions of admissions by day of week of admission, emergency admissions, consultations, and deaths. 24/

#### The Medical College of Georgia Contract

The scope of this project, begun in June 1968, includes the design, implementation, and evaluation of a UR support system which consists of centralized data processing and consultative services to two community hospitals. The purpose is to develop and test a methodology which can then be used in offering such services to other hospitals. The output, in the form of computer printouts from the data processing operation, will display not only certain statistical analyses, but also tabulations of general administrative data and profiles illustrating patterns of patient care within each hospital, by diagnostic category. These data will serve as a basis for monthly consultation sessions with the assembled medical staff of each participating institution.

The methodology being developed under this contract involves the application of the hospital medical staff's preestablished criteria for 12 diagnostic categories to detailed medical information derived from patient records. The patient records in each of the 12 selected categories are specially abstracted in such a way as to display the application of the preestablished criteria. All other records are abstracted on a general form. The project's approach thus involves screening cases in 12 selected diagnostic categories on those factors predetermined to be important (for example, length of stay) and also generating hospital statistics for all 35-50 diagnostic category groupings.

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20/ McNitt, loc. cit.

21/ Ibid.

22/ Massachusetts Blue Cross, Inc., "Blue Cross Data Service to Aid Physicians and Hospitals," loc. cit.

23/ McNitt, loc. cit.

24/ Massachusetts Blue Cross, Inc., "Blue Cross Data Service to Aid Physicians and Hospitals," loc. cit.



While the computer screening programs are being developed, all records of patients discharged in 1968 are being abstracted. About 30,000 cases in all will be abstracted, which will represent the 12-month period prior to the implementation of the screening mechanism. This will serve as baseline information with which all abstracted case records for the following 12-month period can be compared. Using about 60,000 patient record abstracts, then, the data will be analyzed in 24 monthly segments. The purpose is to uncover any trends that may have existed prior to the program and also to measure the program's impact. The 500-bed participating hospital will account for 25,000 cases, the 85-bed hospital for the other 5,000 cases in each phase of the project. The experience of the two hospitals may also be compared against each other.

## Chapter 8. UTILIZATION REVIEW STATISTICAL SUPPORT ACTIVITIES: CASE SELECTION AND MULTIPLE SERVICES

This chapter surveys one statistical support activity that specializes in developing and applying case selection techniques, viz., the Basic Utilization Review Program (BURP) at Yale-New Haven Hospital and three statistical support activities that provide both comparative data and case selection services. The latter three are 1) the Michigan Medical Service UR project; 2) the Idaho Regional Project; and 3) Health Service Data of Wisconsin, Inc.

### Basic Utilization Review Program

Located in New Haven, Connecticut, the Basic Utilization Review Program (BURP) is Yale-New Haven Hospital's two-stage computer screen of postdischarge cases. BURP is designed to indicate those cases which the hospital's UR committee should review. The BURP mechanism uses empirical standards to identify those patient records with the greatest probability of being statistically deviant 1/ and then evaluates them according to normative standards. 2/

The first stage of the process, called parameter screening, sorts patient records into groupings that are as homogeneous as possible. This is a multiple classification scheme in which groups are formed on the basis of such screening parameters as age, sex, diagnosis, surgery, and complications. In selecting patient records for review, BURP performs what is essentially a deviant case analysis on each grouping: 3/ using statistical methods, it identifies those cases whose length of stay and average daily dollar volume of special services received differ significantly from established limits. 4/ The statistically deviant cases, in

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1/ Sister Marynita Fitzmaurice, Robert Lawrence, and Gary Weygant, "Implementation of a Basic Utilization Review Program" (New Haven: Hospital Administration Program, Department of Epidemiology and Public Health, Yale University School of Medicine, May 30, 1968), pp. 43-44. (Mimeographed.)

2/ Robert F. Morisse, "Development of a Basic Utilization Review Program," unpublished Master's thesis (New Haven: Hospital Administration Program, Department of Epidemiology and Public Health, Yale University School of Medicine, 1968), p. 28. (Mimeographed.)

3/ Ibid.

4/ Robert Young, "Techniques of Case Selection in a Community-Based Utilization Review Program," unpublished Master's thesis (New Haven: Department of Epidemiology and Public Health, Yale University School of Medicine, 1969), p. i. (Mimeographed.)

addition to a sample of cases that do not appear to be deviant, are then sent to the Medical Records Department, where pertinent information contained in the patients' charts is recorded on diagnosis abstract forms.

These cases are next subjected to the second stage of the BURP process, criterion screening. The UR committee uses the preestablished criteria that they developed for these diagnoses to evaluate the cases retrospectively as to the appropriateness of admission, length of stay, and services rendered. The criteria employed include indications for admission, hospital services required for optimal care and consistent with the diagnosis, the range of the expected length of stay, indications for discharge, and complications or secondary diagnoses affecting the treatment. 5/

This application of the second-stage screening process to abstracted cases could be used to separate them into three groups: those groups that clearly fall outside the criteria; those groups that clearly fall within the criteria; and those groups that fall partly in one and partly in the other of the two categories. The UR Committee could then plan to review only those cases outside the criteria, those which do not fall totally within either grouping, and a sample of those cases clearly within the criteria (as a constant check on the appropriateness of the criteria). The overall effect of this two-stage screening process is high selectivity of the cases that the UR Committee is to review, so that its attention is directed primarily to those cases with a high probability of being inappropriate in some respect. The retrospective review process is thereby made less time-consuming, more productive, and more flexible.

The implementation of BURP at Yale-New Haven Hospital has involved several steps. 6/ First, information representing patient discharges for the period November 1964 to June 1966, recorded on data processing master tapes stored in the hospital's Medical Record Department, was categorized and then screened according to the trial parameters suggested by the UR Committee. (Analysis of these initial computer printouts resulted in the rearrangement of the age group and other parameters, condensing and redefining the original groupings to create more meaningful categories.)

Next, nine of the initial 39 diagnoses selected for study were used to test and to refine the components of the first-stage screening mechanism. The master tapes were reorganized into two sets--one containing medical information, the other billing data--and updated to include data from all cases discharged through September 1967. Appropriate cut-off points were set for defining statistical deviancy in each of the 53 homogeneous patient groupings. The medical care

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5/ Fitzmaurice, Lawrence, and Weygant, op. cit., p. 52.

6/ Ibid., pp. 56-72.



involved in 134 of the statistically deviant cases was then evaluated to ascertain the efficiency of the first-stage screening program in identifying cases of inappropriate hospital utilization (according to the preestablished criteria). 7/

For second-stage processing, Yale-New Haven Hospital adapted disease criteria from the University of Michigan criteria. 8/ For each of the nine diagnostic categories selected, abstracts were developed that were consistent with the Michigan criteria for that category. These abstracts are providing the UR Committee with information required for its evaluation of unusual cases. Further, the computerization of the criterion screening stage of the BURP process is planned. When fully operational, it might very well eliminate the need for the separate first-stage screening mechanism.

The BURP system is not only a screening mechanism, but also potentially a device for generating rapidly many different types of statistical reports and profiles. These computer-prepared tabulations of available information can demonstrate patterns, trends, and variations in care; patterns of utilization of hospital services; and other variables of interest to the hospital's UR Committee. Such data can then be used to facilitate studies in the Utilization Review Committee's areas of special concern. For example, two measures of variation in hospital use which the UR Committee might wish to examine most frequently are length of stay and the dollar volume of special services per day.

#### The Michigan Medical Service UR Project

Early in 1967, a special task force established by the Michigan Medical Service (Blue Shield of Michigan) began developing a utilization review project. 9/ It encompassed the refinement and improvement of the classic profiles and measurements of statistical deviation currently in use at the Blue Shield Plan, the creation of new analytical techniques, and the application of these methodologies to the study of medical care patterns and problems. 10/ The study population for these UR purposes consisted of the medical personnel and facilities providing and the Blue Cross and Blue Shield subscribers utilizing medical care in Michigan. 11/ The

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7/ R. M. Young, loc. cit.

8/ See Beverly C. Payne, ed., Hospital Utilization Review Manual, loc. cit.

9/ John C. McCabe, "Current and Future Plans in Utilization Review," paper presented at the 2nd National AMA Conference on Utilization Review, Houston, Texas, November 25, 1967. Published in American Medical Association, Summary of Selected Papers: 2nd National AMA Conference on Utilization Review (Chicago: AMA Department of Community Health, 1968), p. 2.

10/ Ibid., p. 3.

11/ Ibid., p. 6.

Blue Cross and Blue Shield Plans' existing tape records of enrollment and utilization provided much of the necessary primary data. 12/

The research personnel staffing the project have received guidance from several groups both within and external to the Blue Shield Plan. The internal Utilization Management and Control Committee, a special committee of the Plans' Board of Directors composed of both physicians and laymen who are interested in effective utilization at reasonable costs, guides the project by making policy and affords consultative support. 13/ The Blue Shield administration's Steering Committee has responsibility for the direct management of the study. External to the Plan is the Utilization Medical Advisory Committee, which represents the Michigan medical community. Another affiliated outside group is the Technical Advisory Committee, which represents technical competence in the area of medical economics. To complete the UR program's organization, a staff of physicians associated with the Plan has been mobilized to disseminate the project's research findings and publications throughout the medical community. 14/

The scope of this UR program encompasses the following specific areas of concentration: (1) the development of appropriate local criteria for UR problems and case review; (2) the measurement of variations in such criteria by locality; (3) the development of methods of measuring utilization in extended care facilities, hospital outpatient departments, and physicians' offices; (4) the evaluation of the effects of expanding Plan benefits; and (5) the exploration of examination techniques and reporting requirements of physicians to avoid excessive paperwork and thereby increase their cooperativeness. 15/

Initial project tasks have included the following: (1) compiling a bibliography of review publications; 16/ (2) studying the definition and application of case review criteria; (3) analyzing previous and current studies and systems and beginning to design systems for the application of statistical methods to the selection, screening, and evaluation of cases; (4) initiating implementation of utilization controls within the Plan and external review activities (such as the broadening of field audit systems); and (5) coordinating with other Michigan agencies involved in the planning and operating of UR efforts, particularly the physicians. 17/

During the two-year period extending from January 1, 1968, to December 31, 1969, the project progressed in three distinct phases: Computer Screens,

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12/ Carl Josephson and Louis F. Hayes, Utilization Review Project (Detroit: Michigan Medical Service, 1967), p. 5.

13/ John C. McCabe, op. cit., p. 3.

14/ Carl Josephson and Louis F. Hayes, loc. cit.

15/ John C. McCabe, op. cit., p. 5.

16/ Carl Josephson and Louis F. Hayes, loc. cit.

17/ John C. McCabe, op. cit., p. 6.



Patterns and Profile Studies, and Special Studies. 18/ The first phase involved the development of an automated two-stage or multi-stage screening method by which to identify medical cases that need physician review. Through the electronic processing of data already available, the basic goal of Computer Screens was to enable the selective manual examination of those cases showing any unusual incidence of service or treatment.

To this end, Computer Screens incorporated four categories of screening review: (1) claims; (2) case study; (3) physician profile; and (4) facilities.

The claims review is an immediate inspection of each claim being processed for payment.

Case review screens (primary and secondary) go beyond this to evaluate a group of claim transactions that constitute an incident of illness. These screens of episodic medical care are based both on normative data by age, sex, diagnosis, severity and complications of illness (using statistical quality control and linear multiple regression model approaches); and also on criteria of standard medical practices and procedures (applied through pattern search). Preliminary case review screens will be restricted to the most frequent diagnoses and procedures occurring in the categories of inpatient medical and surgical (including maternity) and office surgical care. If this screening proves feasible, then computer programs for office nonsurgical care and outpatient treatment will be added in that order.

Computer Screens also include the assessment of normative information about provider characteristics: a physician profile screen, which examines the aggregate medical care administered to Plan subscribers; and a facility review screen, which examines the aggregate medical care given at each hospital.

The second phase of the project, Patterns and Profile Studies, is the description of characteristics of medical care and the usage of medical services in the community. This phase includes examining and evaluating the efficiency of present patterns of utilization in terms of the current allocation of medical resources. The objective of Patterns and Profile Studies is a comprehensive analysis of medical utilization in Michigan through linking together the characteristics of patients, hospitals, and physicians.

Special Studies, the third phase of the UR program, concerns all other experimental studies relevant to medical care problems. One of these special studies, already completed, has been an examination of Blue Shield utilization data to determine the frequencies of procedures, by medical systems. Another experimental study is an investigation of Blue Shield subscribers to evaluate the quality of Plan record data for research purposes. Also currently in progress is an exploratory study of the frequency of medical services by their relative values. Additional studies

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18/ Carl Josephson and Louis F. Hayes, op. cit., p. 1.



under consideration include a Markovian probability analysis of a person's state of health at various life cycles, factor analyses of diagnostic categories, and the characteristics of medical care rendered to Medicare beneficiaries.

Michigan Medical Service's UR project thus plans to mold medical care problems into a form allowing systems analysis; to solve problems associated with processing large quantities of data; and to define characteristic medical utilization. A final step will be to design complete systems and offer them to others, providing the coordination and technical assistance necessary to implement those proposals and recommendations which range beyond the present scope of this project. 19/

### The Idaho Regional Project

The Public Health Service developed a contract with the Idaho Foundation for Medicine and Biology, Inc., and provided funds from June 1, 1967, to November 1, 1969, for the design, implementation, and evaluation of a regional utilization review plan for the Treasure Valley area in southwestern Idaho. The initial scope of this project included the creation of a broadly representative central coordinating committee and an integrated approach to utilization review under Public Law 89-97; the formation of regional review committees to assist small hospitals and extended care facilities with the UR process, both in the formulation of policies and in the design and implementation of procedures; the development of a computerized UR screening process and of a back-up data collection and analysis system for use both by regional and local UR committees, as well as by health facility administrators; the provision of consultative services to in-house UR committees and administrators; and an evaluation of this UR project. The evaluation includes determining its acceptability to physicians, administrators and others; a cost analysis of the program; and an assessment of its effects on individual patient care planning and on regional planning for health care facilities and services.

The central coordinating committee, advisory in nature, was initially organized to provide consultation and assistance in the conduct of all proposed project functions. Its composition included the Executive Director of the Idaho Hospital Association, the Executive Secretary of the Idaho Medical Association, the Executive Director of Blue Cross of Idaho, the Field Director of the Equitable Life Medicare Administration, four hospital administrators, six practicing physicians, UR committee chairmen, and representatives of the Idaho Public Health Department. Committee membership was subsequently reduced but later on reactivated with the addition of medical record librarians, State agency representatives, and others. Project activities were eventually continued under the informal advice and assistance of State agency personnel, fiscal intermediary representatives, hospital administrators, and UR committee chairmen, who consulted with physicians and facilities seeking to

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19/ John C. McCabe, loc. cit.

establish effective utilization review procedures. A plan calling for regional utilization review committees failed to receive the endorsement or support of either the State or regional medical society in Idaho, and hence it was never implemented.

The Idaho Regional UR Project established a case screening system and a date file for later analytic studies. The screening and information gathering began in July 1967 with the design and subsequent revisions of two brief, concise abstract forms for the collection of hospital and ECF (extended care facility) patient data. The project employed the services of medical record librarians and other record room personnel to complete hospital abstract forms from medical record information on a weekly basis, both for all inpatients whose stays exceeded 14 days and for all patients discharged. It enlisted registered nurses or ECF administrators to abstract medical record data on all Medicare patients in extended care facilities, also on a weekly basis.

Several pilot studies conducted beginning in August 1967 tested the entire screening process and found that the preparation of abstracts required an average time of 3 to 5 minutes per patient record. The abstracts were then subjected to coding, keypunching, and electronic data processing. Later, patient record abstracts from participating Treasure Valley hospitals (most of the 13 area facilities except those subscribing to PAS) were screened for overstay and understay in comparison with average durations of stay for 84 common primary diagnoses. The advantages of such a screening mechanism have included reducing the administrative work of practicing physicians, making more time available for patient care, and improving overall health services in the region. 20/

In addition to this computerized screening procedure, the project derived from the abstracted material certain statistical data on hospital utilization and treatment procedures for interhospital comparisons and developed individual hospital performance profiles (lengths of stay for various diagnoses) for the medical staffs, hospital administrators, and fiscal intermediaries involved. Intrahospital analyses could also be made by comparing automatically the length-of-stay distributions for specific diagnostic categories with national data from the Professional Activity Study and reporting results back to the project's participating institutions.

The Idaho Regional UR Project established on a limited trial basis a telecommunications system for providing automated data analysis on a 24- to 36-hour mail out and return service. 21/ Operational for four of the institutions participating in the regional plan, one hospital and three surrounding ECF's, it served to demonstrate the feasibility of this method of communication in accomplishing case screening and other utilization

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20/ Raymond L. White and Warren B. Ross, "The Idaho Regional Project," Public Health Reports, September 1968, p. 741.

21/ Ibid., p. 742.



review assistance for outlying facilities. This procedure did increase appreciably, however, the time spent by record room personnel and the cost per patient record transmitted, while failing to lessen turn-around time.

The possibility existed of extending the Idaho Regional Project to all interested institutions in the State for the performance of UR committee work in the rural communities. 22/ Blue Cross of Idaho expressed interest in collaborating with project personnel to expand the program throughout the State. The project's lack of complete acceptability to many hospital medical staffs, however--as evidenced in numerous meetings, queries, and repeated visits--halted further efforts in this direction despite the general support of hospital administrators.

Physician resistance to the project appeared to be based on "fear of the potential use of the collected data by the Federal government, increased burden to the UR committee and a sense of futility of the UR process." The project staff also recognized "State regionalism and Federal intervention in the physician-patient relationship as other contributing manifestations." 23/

The cost elements of the utilization review process documented by the project consisted of the following specific costs per patient record: the abstract forms, the clerical time necessary to prepare the abstracts, provider and project postage, data processing and UR screening (keypunching, verification, programming, and computer time), and total administrative personnel time for supervising the project (exclusive of their developmental activities). For the total of 16,933 patient records abstracted from June 1, 1968, through May 30, 1969, the estimated per patient record cost was 0.684¢.

The Idaho Regional Project has had certain tangible (and intangible) results: (1) an increased general awareness of the legal requirements and philosophy of utilization review, the available methods for accomplishing it, and physicians' responsibilities and prime importance in this regard; (2) an appreciation of the benefits of categorical disease review in contradistinction to a fixed number of days for all extended stay review; (3) the demonstrated feasibility of UR screening by computer techniques as an adjunct to data collection; (4) an improved identification through the case screening program of those patients whose stays have had abnormal characteristics; and (5) a realization of the impracticality of peer review in small rural hospitals and of the difficulty of regional review committee formation without the local support of knowledgeable, interested physicians and organized medical groups.

Based on the experience of the Idaho contract, the delineation of conditions that seem essential to the establishment of effective regional UR mechanisms for other rural areas has been possible. These requirements appear to be as follows:

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22/ Ibid.

23/ Warren B. Ross, Final Report: Public Health Service DMCA Contract No. 110-83 (Boise, Idaho: Idaho Foundation for Medicine and Biology, Inc., November 1, 1969), p. 5.



1. An advisory committee drawn principally from State or regional medical societies, with the additional support of paramedical personnel;
2. Physician orientation to the philosophy of utilization review and the benefits inherent in effective UR, as well as education concerning their responsibilities for the process;
3. The concomitant orientation and education of hospital administrators and medical record room personnel to foster an integrated team approach to UR;
4. Coordination among regional and local UR committees, State agency personnel, and fiscal intermediary representatives on matters of policy and implementation; and
5. Access to time-sharing computer facilities to provide economical data tabulation, useful analytical displays, and efficient case screening.

#### Health Service Data of Wisconsin, Inc.

A non-profit agency devoted to assisting utilization review committees through the application of automated data processing techniques, Health Service Data of Wisconsin, Inc., is comprised of representatives of medical, hospital, public, and insurance interests in the State. <sup>24/</sup> Its objectives are to make the committee process of reviewing hospital patients' lengths of stay less time-consuming, less frustrating, and more rewarding through the use of a systematic approach. <sup>25/</sup> As of January 1, 1969, 23 hospitals in Wisconsin were participating in this program. <sup>26/</sup>

Health Service Data employs a simple, straightforward methodology in achieving its goals. Before the hospital UR committee becomes directly involved, the following preliminary procedural steps have already been taken: (1) the abstracting of medical records by hospital personnel; (2) their listing by automatic data processing; (3) the preparation of statistical data; and (4) the development of individual hospital profiles. Subsequent committee activity can then be directed toward the review of identified problem areas: by special data collection, by procedure review, or by case review. <sup>27/</sup> The first four steps above serve both to highlight important areas for further study, as well as to eliminate large areas that do not warrant such attention.

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<sup>24/</sup> Sidney Shindell, "The Use of Automated Techniques in Aiding Utilization Committees," paper presented at the Annual Meeting of the State Medical Society of Wisconsin, Milwaukee, May 13, 1969, p. 13. (Mimeographed.)

<sup>25/</sup> Ibid., p. 1.

<sup>26/</sup> Ibid., p. 12.

<sup>27/</sup> Ibid., p. 3.

The abstract form in use is designed to obtain the following information from the patient's chart: the admission date and hour of admission; the urgency of the admission and the service to which admitted; the sex, age, and marital status of the patient; the attending physician and either the consultant or the referring physician; the number of consultants; the primary diagnosis and up to 7 auxiliary diagnoses or complications; the discharge date and status of discharge; and the type of accommodation and payment status of the patient. For surgical and obstetrical cases, the abstract form is designed to elicit three additional pieces of information: the surgical procedures performed (up to a total of 6 per admission); the date(s); and the surgeon(s). Since virtually all necessary data are present on the face sheet of the patient's chart, it generally takes less than five minutes per patient to record this information. The task of completing the abstract form does not require hospital personnel with prior medical training. 28/

The Data Processing Center of Health Service Data of Wisconsin, Inc., receives completed abstracts from participating hospitals in batches of about 100 forms at a time. From these it prepares essential hospital indexes on a monthly basis, as well as statistical and special reports. The initial steps in processing the abstracts involve checking them for completeness and for possible coding errors before keypunching the data. The punched cards are then computer-edited for inconsistent entries, sorted, tabulated, and finally printed out. 29/

Each hospital receives a listing of all cases discharged during the month, first by primary diagnosis, then by principal operative procedure. All cases of a particular diagnosis are grouped together and arranged by length of stay within that group. Periodically (every three months for the larger hospitals, every six months for the smaller ones), all data for the preceding period are combined and cases are then listed by each diagnosis recorded and each surgical procedure performed. These indexes are supplied to participating hospitals in permanent binders for easy storage and future reference. 30/

A computer-prepared statistical report on overall hospital activity is also furnished to each participating hospital. Essentially a discharge analysis report, it presents the following data for each hospital service: the total number of patients, days of care, the median stay; the number of patients operated upon; the number of emergency admissions; the number of patients with consultations; the discharge status of patients; and the number of patients and total days of care by source of payment. 31/ Participating hospitals may also request special statistical reports in the same general format as above, such as analysis of cases by patient residence instead of by hospital service. 32/

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28/ Ibid., p. 4.

29/ Ibid., p. 5.

30/ Ibid., pp. 5-6.

31/ Ibid., Figure II.

32/ Ibid., Figure III.



Of all the information which Health Service Data makes available to each participating hospital, the most important for utilization review purposes is the periodic individual hospital profile. First, a series of diagnoses and/or procedures is designated for inclusion in this length-of-stay profile. Instructions are then given to the computer to select appropriate cases in each category for each hospital, excluding patients who died, left the institution against medical advice, transferred to another facility, etc. A statistical summary of the case data is prepared to show the hospital's average length of stay compared to 19 other, similar participating hospitals. A bar graph is also computer-prepared for each hospital, depicting its relative rank in each diagnostic or procedural category and indicating those average lengths of stay which were shorter than in previous periods. 33/

The hospital UR committee can use this profile to examine its usual pattern of care as compared to other area hospitals and to give priority attention to those diagnostic categories showing experience dissimilar to that of other hospitals in the community. 34/ The utilization committee first selects a particular category for concentrated study and then evaluates all pertinent factors. It generally accomplishes this by requesting for review a series of cases evidencing that diagnosis or procedure, perhaps specifying only those with an above-average length of stay. Analysis may indicate either justifiable medical necessity for extended inpatient stay or, hopefully, identify the particular reason(s) for delay. Interhospital conferences with the administration or the service specialties may be held subsequently to disseminate findings or to identify and request needed special studies in such problem areas as admitting office procedures and operating room scheduling. 35/

In addition to such in-house meetings which have actually been held, a number of hospital staffs, utilization committees, and specialty groups in Wisconsin communities have also held joint meetings. The purpose of these has been to examine factors responsible for their differing experiences in average length of hospital stay and to discuss the desirability of specific hospital care regimens. 36/ With respect to the underlying causes of differing lengths of stay, they may include, of course, variations in the severity of certain types of illness among different patient populations and differences in the efficiency of various hospital service operations, as well as variations in customary practice. 37/

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33/ Ibid., p. 7.

34/ Ibid.

35/ Ibid., p. 8.

36/ Ibid.

37/ Ibid., p. 7.



## Chapter 9. UTILIZATION REVIEW AND GENERAL HEALTH INFORMATION SYSTEMS

Increasing computerization within the hospital setting is fostering the development of many new applications of computer science to electronic patient monitoring and data processing. As part of this development, the formation of extensive automatic linkages of health services data with community data is facilitating the production of a broad array of administrative statistical reports, health facilities planning data, and studies of disease patterns and treatments. Health information systems are also being designed to provide routine quantitative information which will be useful in improving the effectiveness of hospital management, the accuracy and efficacy of medical care controls, and the quality of long-range planning and research. Some of the systems under development are partly intended or were modified to fulfill utilization data and case-screening requirements associated with utilization review activities. This chapter surveys the following illustrative hospital information system approaches: the California Health Information for Planning Service (CHIPS); the California Hospital Data Corporation (CHDC); the Veterans Administration Automated Hospital Information System (AHIS); and the Connecticut Utilization Patient Information and Statistical System (CUPISS).

### California Health Information for Planning Service

A California-based Hospital Utilization Research Project (HURP), which started in 1963, conceived the original overall model for a comprehensive health information storage and retrieval system. It proposed the Model I version of the California Health Information for Planning Service for its initial demonstration. 1/ The purpose of HURP was "to develop a methodology on a statewide basis for regular collection, analysis, and use of precise information on hospital utilization." 2/ This project actually formulated two separate but interrelated information system concepts: the California Health Information for Planning Service (CHIPS) and Functional Information for State Health (FISH). CHIPS, a computer-based data retrieval system to aid health facilities, was intended to provide user organizations with timely and relevant information in convenient formats for their planning, standards setting, inspection, licensing, and related activities. FISH was intended to provide the information storage, retrieval, and data processing services necessary for all remaining activities of the State Department of Public Health. While the full conceptual CHIPS/FISH system is not expected to become operational until 1978, the simplified Model I CHIPS system was inaugurated in 1968.

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1/ California State Department of Public Health, Bureau of Hospitals, "Working Paper #6: A Systems Development Approach to Improving Health Services Planning: Long-Range and Short-Range Goals for Developing a State-wide Information Storage and Retrieval System" (Berkeley: Hospital Utilization Research Project, December 1964).

2/ Quoted in California State Department of Public Health, Bureau of Hospitals, "Working Paper #1: A Perspective in Relation to Research Design" (Berkeley: Hospital Utilization Research Project, June 4, 1963), p. I.

Original CHIPS objectives were defined as follows: (1) to identify data which various user organizations (e.g., California State departments, especially the State Department of Public Health's Bureau of Hospitals; 3/ regional and area-wide health services planning associations; voluntary professional organizations; and individual community health facilities) need to carry out their responsibilities for planning, licensing, etc.; (2) to select the best sources for providing the necessary data; (3) to test methods for the collection, storage, and retrieval of these data; and (4) to evaluate the services provided by the system for their extension throughout the State. 4/ The CHIPS concept basic to and underlying these objectives is that pertinent data may be generated by each user of the system and by nonusers as well. Using an integrated data file, the system can accept all significant data, which need be entered only once in sufficient detail so that computer programs can assemble the reports users want. Generating individual institutional planning data and internal management reports thus yields area-wide planning information as a low-cost byproduct. 5/

The provision of CHIPS system data is linked to the development of four computer files for organizing, storing, and retrieving necessary information:

- (1) Institutions-referenced Data File--facts and figures on the operation of institutions;
- (2) Geographic-referenced Data File--data on populations, geographic divisions and locations, and transportation networks;
- (3) Standards-referenced Data File--data on standards for licensing of institutions; and
- (4) Personnel-referenced Data File--data on identification, credentials, employment and related material for professional and technical personnel. 6/

The Model I CHIPS system has established the first three of the four above-mentioned data files, based only on information for inpatient institutions 7/ (acute general hospitals, chronic disease hospitals, and nursing homes).

The CHIPS organizational structure consists of the System Office and two advisory groups. The CHIPS System Office has primary responsibility for all operational aspects of the system: receiving and processing all incoming data, including preparing it for entry into the computer;

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3/ This component has since undergone a reorganization to become part of the new Division of Patient Care Facilities and Services.

4/ John R. Derry, et al., "California Health Information for Planning Service," Inquiry, September 1968, p. 58.

5/ Ibid.

6/ Louis F. Saylor, Summary Report: California Health Information for Planning Service (Berkeley: State Department of Public Health, 1968), p. 9. For details, see California State Department of Public Health, Working Paper # 6.

7/ Louis F. Saylor, op. cit., p. 10.



scheduling time on the computer; developing and improving the computer programs and improving the input and output procedures; supervising the production and distribution of all outputs; assisting all users in utilizing the system effectively; allocating service charges to all user organizations in proportion to their utilization of the system; and making minor changes in system functions. 8/

Two advisory groups closely related to CHIPS's user organizations have helped to guide its course and to identify the data needed for reports. The Committee on the Information System represents the California Medical Association, California Hospital Association, California Association of Nursing Homes, and the California Health Facilities Planning Council. It advises CHIPS on policy matters, reviews suggested input and output data formats, and assists in the evaluation of results. The other group, the Technical Group on Users' Benefits, is composed of staff representatives of the above user organizations. They work with project personnel to identify the objectives of the participating organizations, to detail users' explicit data requirements, and to guide modifications that will meet users' needs. 9/

Model I CHIPS received a Public Health Service grant in June 1965 for a demonstration of the preliminary design of the information system. The test sites designated for this work with inpatient facilities were three representative hospitals in Santa Clara County, California. Legislation occurring during this period, principally Medicare, Medi-Cal (Title XIX in California), and the Comprehensive Health Planning and Public Health Services Act, necessitated modifications in the original CHIPS design. Not only were considerable changes made in implementing Model I (including enrichment of the data files), but its capabilities were tested in a more modest sphere than originally proposed.

During the last half of 1966, systems, procedures, hospital data input forms, and twelve monthly output reports on institutional operations were designed by the CHIPS System Office in conjunction with the hospitals and the Technical Group on Users' Benefits. After a week of testing in December 1966, data were collected in the three study hospitals for the first quarter of 1967. Computer programs were written, tested, and corrected to process the twelve monthly institutional operating reports, and those for the three months of the data collection period were actually produced. 10/ This test demonstrated the feasibility of operating a post-discharge case abstract service for inpatient facilities

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8/ California State Department of Public Health, Bureau of Hospitals, "Working Paper # 10: Preliminary Design of Model I: California Health Information for Planning Service (CHIPS) System" (Berkeley: Hospital Utilization Research Project, April 28, 1965), p. 120.

9/ John R. Derry, op. cit., p. 59.

10/ Ibid.



and laid the framework for establishing a system to supply billing and patient care information within appropriate time limitations. 11/

The CHIPS system was designed to measure and monitor the utilization of hospital services, the costs of services rendered to patients, and other variables relating to daily institutional operations. Participating facilities therefore had to supply case data derived from the admitting office, the medical records department, and the business office. Two forms were used as the principal input documents for the system: the CHIPS Patient Case Abstract and the Daily Discharge and Service Transfer List. The Patient Case Abstract was divided into two parts--the top half completed in duplicate at the time of admission and the original copy forwarded to the CHIPS System Office on a weekly or monthly basis, the lower half of the retained carbon copy completed after discharge and then similarly forwarded to the data processing facility. The Daily Discharge and Service Transfer List was used to record, on a daily basis, all transfers between hospital services, discharges, and deaths and was forwarded weekly to the CHIPS System Office. The total time required for the completion and coding of both forms averaged 15 minutes.

Several CHIPS output reports were designed. Already mentioned was the series of 12 monthly reports providing each hospital with detailed comparative statistics and indexes of its own internal operations. These Institutions Operating Reports were programmed to contain summary information on patient admissions, average daily census, average length of stay, consultations, discharge status, and deaths; patient days by service and licensed bed categories; monthly utilization by licensed services; operations and treatments by length of stay, age, and sex; diagnosis and treatments by length of stay, age, and sex; listings of diagnoses and surgical procedures for discharged patients; and a listing of all patients served, by physician. These reports were intended to serve hospital administrations and medical staffs in providing information required by various accrediting bodies, in indicating the extent to which each licensed service is being used, in aiding decisions on bed and service allocations, and in compiling data useful to the medical records department and the medical audit and/or utilization review committees. 12/

Additional planned CHIPS output reports include computer runs for special hospital studies, ongoing inspection reports, and area planning reports. The inspection reports are quarterly information summaries, by county and for the whole State, of the types of facilities inspected and licensed, the extent of compliance with State licensing regulations, and the uniformity of hospitals' interpretations of the standards. These reports on inspections of health facilities are intended to assist the Bureau of Licensing and Certification, State Department of Public Health, in its functions. CHIPS area planning reports summarize quarterly information concerning present and projected bed status, by class of institution and licensed

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11/ Louis F. Saylor, op. cit., p. 20.

12/ John R. Derry, op. cit., p. 61.

service; utilization by class of institution, licensed service, and individual hospital; population and patient days by census tract; patient travel time to individual facilities, analyzed by licensed service; and travel time to proposed hospital sites, by census tract. 13/

### California Health Data Corporation

The successful demonstration of the Model I CHIPS system reinforced the concept of a State-wide computer-based health information exchange mechanism to be integrated through an independent nonprofit corporation. To this end, the California Health Data Corporation (CHDC) was formed in December 1967 under the leadership of the California Hospital Association and the California Medical Association. Its Board of Directors also includes representatives from the regional voluntary planning groups, the State Department of Public Health, and the State Health and Welfare Agency. At the time of its inception, the CHDC Board and the CHIPS advisory groups overlapped and the staffs of each served the other in a technical advisory role. 14/ CHDC's short-term goal is the development of a centralized post-discharge patient record program for use by all California hospitals. The long-range effort is the receipt of information on health facilities, services, manpower, community health planning, and the health environment, and its supply to providers and other users of health facilities planning data. Acting as a central clearinghouse, CHDC is in a position to expand and update the CHIPS data base and to foster a coordinated network of area-wide health information exchanges. 15/

In assisting participating hospitals with their own information systems, CHDC could promote the following developments: data and equipment compatibility; one reliable data source for all user organizations having health planning responsibilities; the collection of planning data as a byproduct of routine hospital operations; sharing experiences concerning the improvement of data collection procedures within health facilities; and standards for controlling access to the confidential information on medical care costs and services, so as to overcome user organizations' reluctance to exchange data. 16/

The first activity CHDC initiated was a statewide patient origin study carried out under contract with the California Committee on Regional Medical Programs. CHDC coordinated the resources of health facilities planning agencies who were already working area-wide and gathered the necessary data for all organizations involved. The planning agencies distributed standard data sheets to each hospital in the State. The

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13/ Ibid., pp. 61-62. Editor's Note: CHIPS activities have since been absorbed by the California Health Data Corporation (see below in text); future CHIPS output reports have been canceled.

14/ Ibid., p. 63.

15/ Louis F. Saylor, op. cit., pp. 33-34.

16/ John R. Derry, op. cit., p. 62.



medical record librarians completed a data sheet for each patient discharged during the last week in March 1968. The planning agencies then collected the completed sheets and forwarded them to CHDC for data processing. Output reports were sent to all participants in August 1968.

To eliminate special one-time projects like the patient origin study and to establish continuously operating data-gathering programs, CHDC sponsored a medical record information system for all California hospitals, called Medi-Record. Previously offered commercially in the State, Medi-Record has received the official backing of the California Hospital Association and the California Medical Association. The system provides daily service to hospitals in summarizing inpatient medical record information. To accomplish this, each hospital completes a case abstract for every discharged patient and mails it to a computer center for data processing. The output returned to the hospital contains medical record statistics and indexes. Medi-Record is visualized as an initial element in the general attempt to centralize all health data gathering into a "health data bank" for all potential users. 17/

The data bank under CHDC's jurisdiction at the present time includes not only Medi-Record information, but data files from PAS as well for those hospitals which subscribe to either system. With its continuing access to a considerable amount of medical record information, California Health Data Corporation could develop an exception reporting system for participating hospitals. Such a reporting system would accomplish the following: (1) identification of those individual patients who had either exceptionally long or exceptionally short stays or exceptionally high total charges; (2) delineation of patterns of such cases within sub-populations of each participating hospital; and (3) provision of information to "fiscal intermediaries and government agencies which have responsibility for monitoring the utilization of hospital facilities." 18/

This exception reporting system could employ three basic statistics to generate hospital utilization indexes: the number of patients, the number of hospital days, and the total charges. These and derivative statistics (average length of stay, average daily charges, average charges per case) could then be analyzed in terms of a variety of available patient classification factors and combinations of these factors: cause of hospitalization, age, sex, source of payment, type of operation, service, and physician. 19/ The statistical technique

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17/ Eric Leighton, "Activities of California Health Data Corporation," memorandum sent to the Social Security Administration on June 3, 1968.

18/ Eric Leighton, "Proposal to Develop Exception Reporting of Hospital Utilization Statistics," draft paper (San Francisco: California Health Data Corporation, July 28, 1969), p. 1.

19/ Ibid., p. 5.



to be employed could be analogous to that used in the PAS length of stay package although utilizing a California data base. Each hospital subscribing to the exception reporting system would receive a listing of patients with either unusual lengths of stay (very short or very long) or unusually high bills, in comparison with similar patients in similar hospitals; and listings of those services, diagnostic groups, payment sources, and physicians with the highest percentages of such cases. 20/ In addition to these interhospital comparisons, comparisons of different types of hospitals might also be possible. 21/

Four stages have been proposed in the development of CHDC's exception reporting system:

- (1) Setting up the data base--bringing all the available medical records data together into one convenient file.
- (2) Creating a "master table" (or tables, one for each type of hospital), containing the length of stay distribution and the distribution of total patient bill for each type of patient.
- (3) Implementing the system--design of input and output forms, writing the necessary computer programs.
- (4) Field testing the system in a large number of hospitals. 22/

#### Automated Hospital Information System

AHIS is a comprehensive automated hospital system designed to collect, store, and display information useful to hospital personnel in improving the management and utilization of existing direct patient care services and facilities. 23/ The total system design involves a completely integrated multiple set of subsystems operating seven days a week, interacting directly with the users on an immediate-response basis through multiple on-line input-output terminals (conveniently located in the patient reception area, the admissions office, the information desk, and all wards) and meeting all essential user information requirements. The AHIS subsystems can be programmed on a computer to simulate the real operations of a hospital and thereby to predict the potential impact of proposed system improvements on the utilization of hospital personnel.

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20/ Ibid., p. 6.

21/ Ibid., p. 5.

22/ Ibid., p. 6.

23/ L. G. Christianson, "Veterans Administration Automated Hospital Information System," Inquiry, September 1968, pp. 48-50.

The Veterans Administration launched the pilot AHIS study in the fall of 1964 for the VA Hospital in Washington, D. C. Its goal was to provide a limited but meaningful initial operational experience, one that would be representative of the total system's potential problems and benefits. The pilot study has involved the identification and design of the following subsystems: Admissions and Dispositions (A & D), Medication, Laboratory, Radiology, Ward Care, Dietetic, Surgery, Central Service, Clinic, Patient Information, and Medical Administration. In the summer of 1968, the A & D subsystem was installed throughout the hospital. The addition of the Radiology subsystem was also scheduled.

To illustrate the pilot AHIS design, the Radiology subsystem can be used. It concerns the ordering, scheduling, and control of all requests for diagnostic X-rays. A physician's order for a radiographic examination specifies the type of procedure to be employed--immediate, portable, routine, or routine with prior necessary patient preparation. Clerical personnel enter this order into the system, whereupon computer programs establish appropriate schedules for the Radiology Department and generate notices for required patient preparation, meal holds, etc. Upon completion of the examination, the system receives notice that a written report will follow. It then obtains and processes automatically the findings--both normal and negative--from reading the radiographs. In addition, the subsystem maintains a complete catalogue of available diagnostic radiology procedures, which can be updated and printed out at computer terminal locations whenever needed.

#### Connecticut Utilization Patient Information and Statistical System

Sponsored by the Connecticut Regional Medical Program, the Connecticut Utilization Patient Information and Statistical System (CUPISS) will incorporate the BURP program 24/ as one component in a more comprehensive, area-wide patient information system. It is being designed to encompass a medical audit display, a recall service, and a case-screening mechanism. The medical audit display, similar to the Medical Audit Program of the Commission on Professional and Hospital Activities, will record all pertinent hospital stay information and periodically will generate all routinely required patient and hospital statistics for each participating institution. The system concept includes employing a recall device to provide a patient's history record upon request. Having obtained the patient's and the attending physician's consent, any physician will be able to get from the system a display of the patient's previous hospitalizations by keying in an identification number for himself and his patient. Using the BURP program for computerized case screening, CUPISS will also be able to identify statistically deviant cases for UR committees' post-discharge reviews.

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24/ Currently under a Public Health Service contract for its continuing refinement. See page 74ff.

The development of the methodology for the BURP component is currently the most advanced part of the CUPISS program. The techniques of forming case groupings based on patient characteristics were applied to 23,168 patients from 19 Connecticut medical facilities in addition to those from Yale-New Haven Hospital. The successful formation of 65 homogeneous groups substantiated the feasibility of extending the BURP system to a community of hospitals. 25/



In the early stages of development, many objectives were ascribed to utilization review. Some people viewed it only as an inspection device or as a measure for utilization and cost control. Others stressed the quality of care (medical audit) aspects of the review mechanism. Some regarded UR predominantly as an educative device for health professionals. Still others considered utilization review to be a tool for the more efficient and effective use of scarce resources and facilities in the management of patient care. But with the advent of Medicare, two basic objectives received the strongest emphasis: (1) proper utilization of hospitals and (2) assurance of high quality care.

The picture of utilization review as it is now evolving under Medicare is essentially one of great diversity among the participating providers of care. Wide variations exist in nearly every aspect of the UR process, including its acceptance and actual effectiveness. 1/

### Future Trends in Utilization Review

The comprehensive review of all patient care and of hospital utilization patterns, particularly by means of special sample studies, is only one of the trends in UR that can be discerned at the present time. 2/ Others include a new interest in community-based approaches to utilization review 3/ and a recognition of the necessity for coordinating Medicare UR activities with the quality control mechanisms of the Title XIX (Medicaid) program.

Community-based approaches to UR are those which involve analyzing patient needs and matching them with the community's total health service system. 4/ Embodied in these community-based approaches is the concept of progressive patient care, which includes the conscious and careful interrelating of hospital and extended care facilities. 5/

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1/ Cf. Berman, Dvorshock, and Smith, "Utilization Review in Connecticut Hospitals," op. cit., p. 58.

2/ During the Utilization Review Effectiveness Meeting held at the Social Security Administration on August 5, 1969, a participant, Donald C. Riedel, noted the difficulty of disentangling claims administration from patient care review.

3/ Darwin Palmiere, "Community-Based Approaches to Utilization Review," Public Health Reports, September 1968, pp. 706-707.

4/ These are not necessarily identical to the community-wide or other outside UR committee organizations primarily intended to assist small hospitals and extended care facilities in meeting the requirements of the law.

5/ Pierre Salmon cites effective examples of this type of cooperation in San Mateo County, California, in "The Hospital-ECF Continuum," paper presented at the 2nd National American Medical Association Conference on UR, Houston, Texas, November 25, 1967. Published in American Medical Association, Summary of Selected Papers: 2nd National AMA Conference on UR (Chicago: AMA Department of Community Health, 1968), pp. 3-4.

The goal is to make the utilization of available community health resources as effective and efficient as possible by affording graduated levels of medical care to patients as their needs and conditions change.

Recent legislation has extended the UR concept of Medicare to the Medicaid program. The Social Security Amendments of 1967 6/ in part require that all hospitals wishing to qualify for participation in the Medicaid program have in effect a UR plan applicable to all patients who receive medical assistance. This requirement is the substantive equivalent of the utilization review condition of hospital participation in Medicare except for the definition of the population to which such review must be applicable. 7/ Now the UR committees of hospitals eligible to receive reimbursement under both Title XVIII and Title XIX must, as a minimum, include all Medicare and Medicaid beneficiaries in their review process.

An additional trend, which has some potential for expanding the future use of utilization studies, is the accumulation of UR data as a by-product of committee activities. Such information would then be available for other purposes, as, for example, better coordination with the Medicaid program. The UR committee's statistical data on utilization, costs, and other aspects of medical care for the aged population would also be of great assistance to long-range health planning 8/--whether on an individual hospital, community, regional, State, or national basis. The future trend in such planning, already augmented by legislation such as the Comprehensive Health Planning and Public Health Service Act of 1967 (Public Law 89-749), appears to include increasing reliance on the information which utilization review studies and similar activities can provide.

Available data indicate that these UR activities today are gaining strength and momentum in response to the emergent problems of effective utilization and efficient delivery of high-quality health care services in the hospital setting; the impact of utilization review committees seems to be on the increase.

#### Opposition to Utilization Review

The literature on UR is still not unequivocal, however, regarding how well it operates. Some early examples can be found of discouraging failures, or of negative attitudes toward committee activities. The Idaho Regional

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6/ Public Law 90-248, Title II, Section 237.

7/ U.S., Federal Register, March 4, 1969, Title 45, Chapter II, Part 250, Subpart A, Section 250.20, pp. 3, 745-3, 746.

8/ Herman M. Somers and Anne R. Somers, Medicare and the Hospitals: Issues and Prospects (Washington, D.C.: The Brookings Institution, 1967), p. 210.

Project, for instance, was an unsuccessful experiment (but proved to be highly informative). 9/ Another hospital committed the following errors in establishing and operating a utilization review committee that lasted only 18 months: 10/

- (1) Hospital staff executive leaders set up the committee without first enlisting medical staff support.
- (2) The UR committee organization excluded the very men it needed most be be effective--the chiefs of service.
- (3) The authority of the committee was expanded beyond utilization problems.
- (4) The UR committee exacerbated interdepartmental rivalries.
- (5) The committee finally assumed executive power to accomplish by fiat what it was unable to accomplish through cooperative efforts.

Dr. George C. Manning has described negative physician attitudes toward utilization review during its first year of operation under Medicare requirements. 11/ Manning strongly feels that previous opponents who now support UR do so for fear of losing their hospital privileges due to noncompliance, or else because a small clique of influential physicians had tightly controlled bed availability before the installation of utilization review. He further states that almost any hospital stay can be cut if expediency is to be the only consideration. Doctors, he continues, are not solely responsible for the efficiency of hospital utilization and hence cannot effect changes unilaterally, without adjustments that may be necessary in the number of hospital beds serving the community or the scheduling of preoperative laboratory work. Dr. Manning also refutes the contention that utilization control produces medical benefits and tends to improve medical care standards:

No amount of chart scanning can replace the physician's own knowledge of his patient's needs. That some of these needs may be financial or domestic or psychological as well as physical doesn't make them any less valid. Who can say what means of meeting these human needs is correct or incorrect? . . . Until now, doctors have managed to

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9/ See pp. 79ff.

10/ John M. Fahey, "Our Controls Caused an Explosion" in Brenner, et al., "Hottest Volcano in Medicine: Overutilization," Medical Economics, July 13, 1964, pp. 86-95.

11/ George C. Manning, "Utilization Review--Who Needs It?" Medical Economics, March 20, 1967, pp. 112-114, 190-196.



stave off interference by boards and administrators incompetent to make medical decisions. But Medicare has made the utilization whip a vastly more potent weapon to crack over physicians' heads. 12/

#### Opinion Favorable to Utilization Review

In contrast to the literature cited above, current favorable opinions of utilization review also abound. The patient care committee of St. Vincent's Hospital in New York City, for instance, has formed a subcommittee to study problems of inappropriate admissions, excessively prolonged hospital stays, delays in admittance, and duplication of tests and procedures. 13/ Its investigations have led to a number of recommendations and actions designed to correct such adverse findings as:

- (1) Hospitalizations for workups and consultations that could have been obtained on an outpatient basis;
- (2) Inpatient duplication of tests already performed on an outpatient basis;
- (3) No correlation between the time of admission and the scheduling of elective surgery;
- (4) Delays in obtaining surgery consents from child-care institutions for certain minors;
- (5) Improper patient preparation for tests, which necessitated repeating them;
- (6) Delays in the reporting of test and X-ray findings;
- (7) Discharge delays due to waiting for test and X-ray reports when additional or repeat tests, if necessary, could be arranged on an outpatient basis; and
- (8) Late referrals of discharge planning problems to the hospital's social service department.

In a similar vein, physicians who have served on western Pennsylvania utilization committees have reported specific benefits from their UR activities:

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12/ Ibid., p. 190.

13/ Sister Margaret Cortona, "We Took Ten Steps To Solve Utilization Problems," The Modern Hospital, May 1962, pp. 118, 120.

- (1) Reduction of excessive patient stays;
- (2) Reduction in unnecessary admissions and in over-utilization of ancillary services;
- (3) Closer communications between the medical staff, administration, and social service;
- (4) Greater awareness of the problems of prepayment agencies and the effect of unnecessary utilization on Blue Cross and insurance plans;
- (5) Prompter completion of charts and improved charting, with increased attention to dictating operative notes immediately and to entering the final diagnosis at the time of discharge;
- (6) Review of admission and discharge procedures;
- (7) Closer coordination between patient admission and scheduling for surgery, to avoid prolonged preoperative stays;
- (8) Institution of procedures requiring completion of a special form for all emergency admissions;
- (9) Study of procedures to facilitate speedier transfer from one service to another;
- (10) Improved arrangements for handling disposition problems and discharge of long-stay cases. 14/

To cite one more example, positive physician attitudes toward UR are very much in evidence at the Baptist Medical Center in Birmingham, Alabama. There the committee has met little resistance in approaching utilization review as educational and helpful rather than disciplinary. As one physician stated, "The committee steps on my toes occasionally, but it also keeps me on my toes." 15/ Medical staff members feel that the committee has been successful in assisting them "to avoid (1) unnecessary admissions, (2) excessive lengths of inpatient stay, (3) delay in the use or overuse of X-ray, laboratory, or other diagnostic and therapeutic services and (4) delay in consultations and referrals." 16/ This particular UR committee reviews charts of inpatients and discharged patients, including cases of benefit denials, patients' claims submitted

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14/ John A. Nave and Morris London, "Utilization Committees: Threat or Challenge," Pennsylvania Medical Journal, September 1963, p. 25.

15/ Ed Tinnermon and Blanche F. Borders, "Utilization Review A Control Technic," Hospital Topics, August 1969, p. 29.

16/ Ibid., p. 25.

by third-party payers, and problems referred by individual physicians, other medical staff committees, and the hospital administrative staff. The committee's range of possible action includes requesting additional information from the attending physician or asking him specific questions, suggesting earlier patient discharge, recommending transfer to alternative patient care facilities, or recommending discontinuation of Medicare benefits. While not a proof of committee effectiveness, the average length of stay in this hospital has decreased slightly since its UR plan was initiated--a fact that runs directly counter to the national trend.

### Conclusion

Utilization review, then, appears to be functioning most effectively where it existed prior to Medicare and where there has been a long period of experience with such a committee. With respect to the committees newly formed since Medicare:

Early experience suggests that the review committees are working well in large institutions where the job is impersonal, detached, and can be subdivided without excessive burden among a large number of physicians. In small hospitals, where relations among the few physicians are highly personal, there is reluctance to accept the unpleasant duty of appearing to judge one's associates, and compliance with the spirit of the law is largely pro forma. 17/

It should be noted that sufficient data are as yet largely lacking to substantiate or refute the above opinions or to indicate precisely the proportion of hospitals having various degrees of compliance with the UR requirement. The information from the Connecticut UR surveys and from initial questionnaires received in the survey conducted by the Bureau of Health Insurance certainly raises some questions about the timeliness of long-stay case reviews and the components of care examined, comparisons of UR committee findings with other available data, and the implementation of committee recommendations. The heterogeneity of hospital utilization review committees adds to the difficulty of evaluating their functioning and their impact. None of the committees surveyed in Connecticut, however, had any mechanism for assessing its own effectiveness. 18/

In appraising hospital utilization patterns, review committees do accord the greatest weight to existing standards of professional practice and to current uses of the institutions and programs in their area; and in determining the medical necessity of extended inpatient stay, to the opinion of the attending physician. 19/ The primary advantage of UR

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17/ Somers and Somers, Medicare and the Hospitals, p. 262.

18/ Berman, Dvorshock, and Smith, op. cit., p. 61.

19/ Palmiere, "Community-Based Approaches to Utilization Review," p. 706.



committee work as presently performed, then, would seem to lie in its educational objective. Cost control appears to be a more uncertain benefit of utilization review. In fact, because many experts believe that a large proportion of total hospital costs are fixed by the nature of the institution, committee efforts to reduce only the variable costs (most often by lowering average lengths of stay) would seem more likely to result in increasing rather than decreasing per diem charges; patients would probably be receiving more concentrated health care services during their shortened periods of institutionalization. 20/

Experience with utilization committees, however, has served to increase physicians' awareness of their central role in determining utilization rates. In addition, it has resulted in specific administrative changes aimed at improving hospital utilization practices and in better liaison between medical staffs and hospital administrations regarding their mutual problems. 21/

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20/ Walter Polner, "Rising Hospital Costs and Utilization Committees," The New Physician, September 1963, pp. 346-348.

21/ Robert M. Sigmond, "What Utilization Committees Taught Us," The Modern Hospital, February 1963, p. 71.

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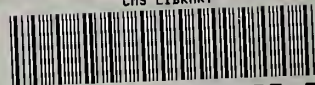
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